

Policy Report on AB 1890 Renewables Funding

COMMITTEE DRAFT

**Renewables Program Committee
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DISCLAIMER

This Draft Report was prepared by the Renewables Program Committee, with assistance from staff of the Energy Technology Development Division assigned to the AB 1890 Renewables Report Project, consultants, and staff in other divisions. It is an attempt at synthesizing the various proposals presented by staff and several parties and to be consistent with the objectives of AB 1890. The views and recommendations contained in this document are the Committee's and do not necessarily represent the views of the Energy Commission.

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EXECUTIVE SUMMARY

BACKGROUND

Assembly Bill 1890, enacted on September 23, 1996, deregulated the electricity industry and established broad funding and allocation guidelines for support of renewable electricity generation technologies over the period 1998 through 2001. The legislation directs the California Energy Commission to report to the Legislature by March 31, 1997, with recommendations for allocating funds for the support of renewable energy technologies. This Committee Draft Report responds to the requirements of AB 1890.

AB 1890 directs the collection of \$540 million from IOU ratepayers from 1998 to 2002 to support existing, new, and emerging renewable electricity generation technologies. The legislation directs the California Public Utilities Commission (CPUC) to transfer these funds to the California Energy Commission pending further administrative and expenditure criteria guidelines from the Legislature. The funds are to be used to:¹

1. support the operation of existing and the development of new and emerging in-state renewable resources;
2. support the operations of existing renewable technologies that provide fire suppression benefits, reduce landfill materials, and mitigate open-field agricultural burning; and
3. support the operations of existing innovative solar thermal technologies that provide peak generation and reliability benefits.

AB 1890 directs the Energy Commission to report to the Legislature by March 31, 1997, with recommendations regarding *market-based mechanisms* to allocate the funds. The programs recommended should include options and implementation mechanisms that:²

1. reward the most cost-effective renewable generation;
2. implement a process for certifying renewable resource providers;
3. allow customers to receive a rebate from the renewables fund;
4. allocate at least 40 percent of total funds to existing and at least 40 percent to new and emerging renewables; and
5. use financing and other mechanisms to maximize the effectiveness of the available funds.

¹ Article 7, 383.a.

² Article 7, 383.b.

The legislation also requires that the report include consideration of:³

1. the need for mechanisms to ensure that cogeneration using energy from environmental pollution in its process and microcogeneration with a total generating capacity of less than one megawatt (MW) remain competitive; and
2. whether fuel cells should be treated as fuel switching under the legislation, and therefore be eligible to avoid the CTC.

Finally, AB 1890 directs three policies that are related to but not fully addressed in this report:

1) IOUs are to allow customers to make voluntary contributions to support renewables.⁴ 2) municipal utilities are directed to collect funds for public-purpose programs, including new investment in renewable resources.⁵ 3) AB 1890 requires the California Environmental Protection Agency (CalEPA) to submit a report to the Legislature by March 31, 1997, that evaluates benefits of the solid-fuel biomass industry and recommends cost-shifting strategies. The legislation requires coordination between the CalEPA and the Energy Commission's renewable policy efforts.⁶

The Energy Commission began collecting input from stakeholders with an En Banc Hearing on October 16, 1996. This hearing was followed by a series of five Renewables Program Committee (Committee) and Staff workshops during November and December. Stakeholders presented proposals on the allocation of funds to the broad technology status categories and to specific technologies, mechanisms for distributing the funds, and certification issues. A Staff Report based on information presented by participants during these earlier workshops was distributed to participants for public comments on January 4, 1997, and public input on the Staff Report was received at a Committee Hearing on January 16, 1997. The Committee then developed this Committee Draft Report based upon the Staff Report, further assistance from staff and consultants, and review of comments from the January 16 hearing and subsequent written comments.

ALLOCATION OF FUNDS

Participants in the Energy Commission's proceedings presented proposals with widely varying implications for the renewables industry. A coalition comprised of most of the established renewable industries proposed allocating 60 percent to existing facilities, with support tied to market prices and funds rolled over to other categories if not needed. Other proposals gave a

³ Article 7, 383.c.

⁴ Article 7, 381.d.

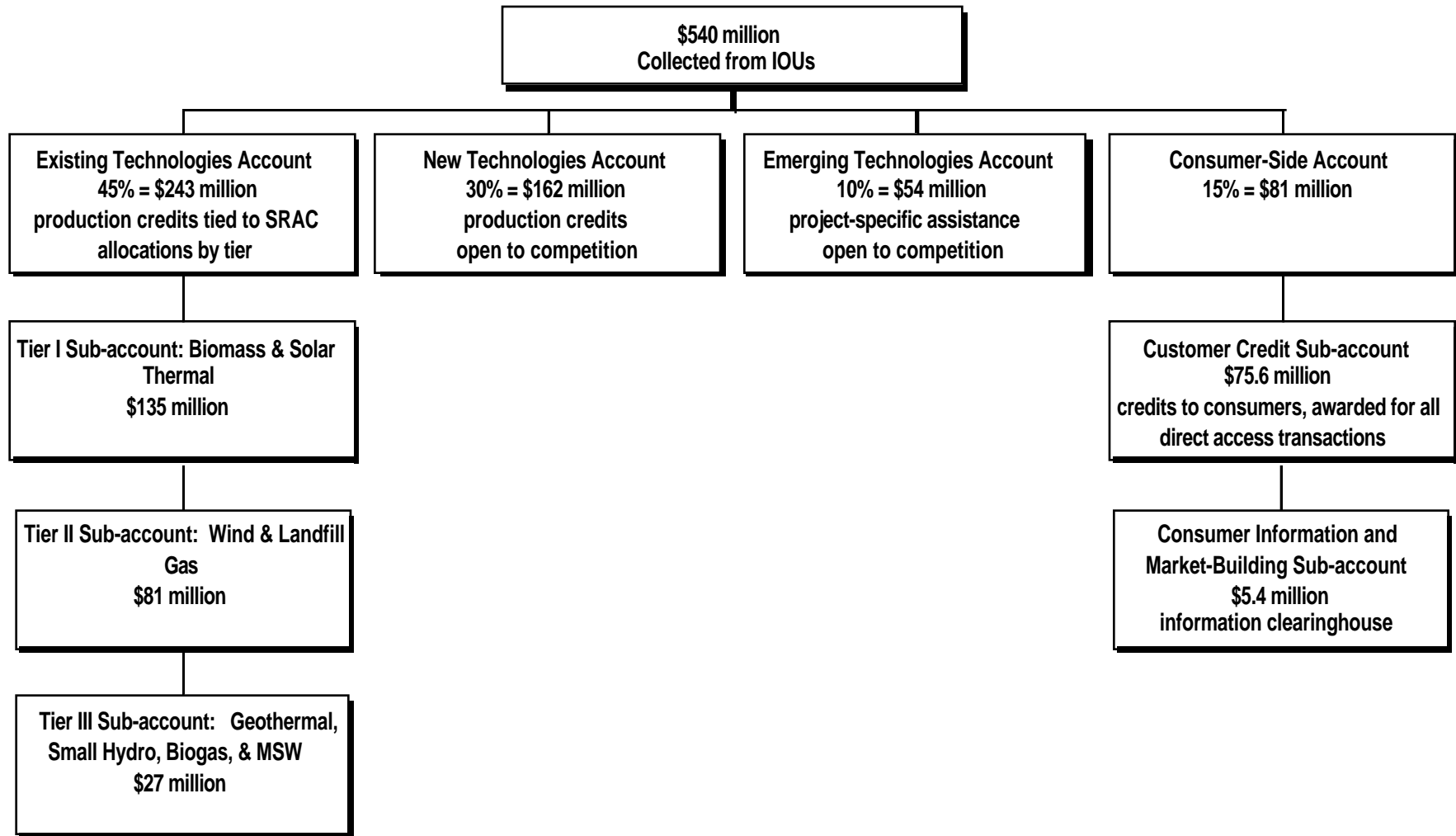
⁵ Article 8, 385.a.

⁶ Article 9, 389.

substantial portion of the funds to emerging technologies or for the marketing of renewables directly to customers.

The Committee evaluated these proposals in relation to the objectives of AB 1890 and developed the allocation strategy summarized in Figure ES-1. The Committee recommends that AB 1890

ES - 1: Proposed Allocation of AB 1890 Renewables Funds



renewables funding flow through four accounts, designed to provide balanced support for the renewables industry and satisfy the objectives of AB 1890. Each technology status category (Existing, New, and Emerging) is assigned an account. A fourth account, the Consumer-Side Account, is designed to help develop a consumer-driven market for renewable generation supplied by any status category. While the Committee favors a customer-driven market for renewables, the fate of the existing renewables industry should not rest wholly with the consumer market until that market has proven viable. A balance of support to existing and new suppliers is needed to ensure that suppliers will be around to provide renewable power to those consumers who desire it when the consumer market develops.

The **Existing Technologies Account** is initially allocated 45 percent of the \$540 million for the support of existing renewables (these funds may rollover to other uses if not needed). The Committee's proposal aims to maintain the benefits of the renewables industry by providing support that reflects industry needs, while encouraging movement towards a competitive market by the end of the AB 1890 funding period. Movement towards market-based competition is encouraged by phasing down funding over the four years and by allocating support to three broad tiers, rather than specific technology allocations. The first tier is allocated 25 percent of the funds, the second tier is allocated 15 percent, and the third tier is allocated 5 percent (totaling 45 percent for the entire account).

Of the 40 percent minimum AB 1890 allocates to new and emerging technologies, the **New Technologies Account** is allocated 30 percent of the funds and the **Emerging Technologies Account** receives 10 percent (additional funds may become available from the Existing Account rollover). The Committee recognizes that new renewable generation developed with AB 1890 support must eventually be competitive in the general electricity market or an uncertain green market. The proposal therefore provides neither specific technology allocations nor tiers for new renewables; rather, it sets up competitive bidding mechanisms to reward the most competitive and cost-effective new renewable generation without administratively specifying technologies to be supported.

The remaining 15 percent of the funds is allocated for use in the development of a customer-driven renewables market. The Customer Credit Sub-account is allocated 14 percent of the consumer funds, which will be returned as a bill discount to consumers who purchase renewable energy from either existing, new, or emerging technologies. One percent of the funds is allocated to the Consumer Information and Market Building Sub-account.

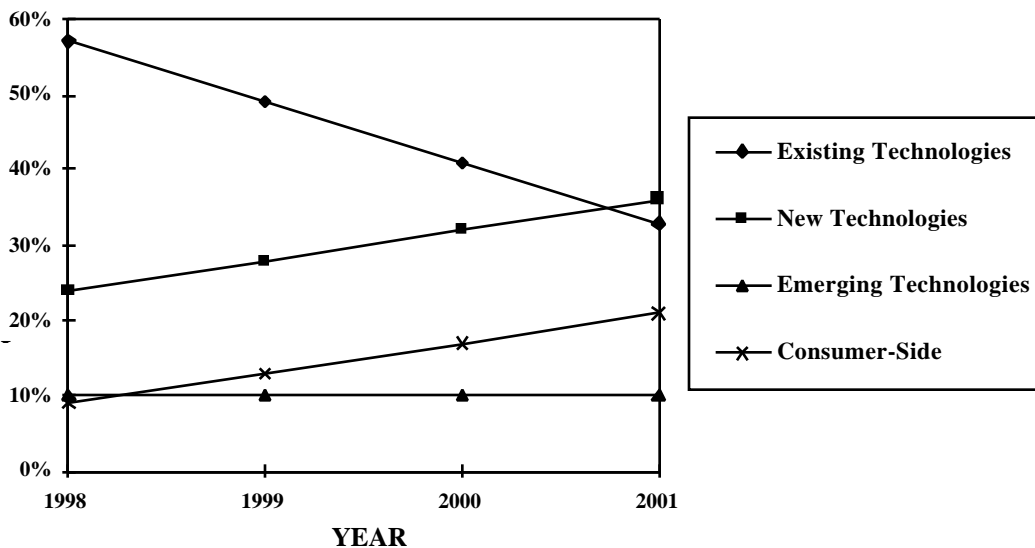
The Committee changes allocations between accounts over time (see Table ES-1 and Figure ES-2) using ramps, while keeping the overall allocations given above. Funding to the Existing Technologies Account ramps down, while funding to the New Technologies Account and the Customer Rebate Account ramp up. The existing account ramps down because existing technologies must become increasingly cost-effective over the transition period and the market price may increase over time, reducing the need for funding

Table ES - 1: AB 1890 Accounts - Allocations by Year

Account	1998	1999	2000	2001	overall
Existing Technologies	57%	49%	41%	33%	15%
New Technologies	24%	28%	32%	36%	
Emerging Technologies	10%	10%	10%	10%	
Customer-Side	9%	13%	17%	21%	

Funds roll over within the same Account when not needed, potentially increasing available funds in later years. The Committee is assuming that the overall funds are collected in four equal allotments over the four year period.

Figure ES - 2: AB 1890 Accounts - Allocations by Year



We assume at this time that the AB 1890 funds will equal \$540 million collected evenly over the four-year period. We propose not to dispense funds until they are collected. We do not expect to change allocations if collection occurs in a different pattern than assumed here, but will apply the 2001 percentages shown in Table ES-1 to funds collected in 2002 if necessary.

The allocation for new technologies increases over time because there are expected to be fewer new technology projects producing electricity in the early years than in the later years. This is true even though we propose to allocate the new account funds in one auction at the beginning of the period. Allocation of the funds implies commitment to winning projects, while distribution of the funds increases over time as more and more of these projects produce electricity. Similarly, the allocation to the customer-driven market account increases because few suppliers or

consumers are expected to be ready to participate in a consumer-driven market by 1998, but this market is expected to grow significantly over the four years.

The Committee proposes that funds in undersubscribed accounts for any period roll over to the same account in subsequent periods (this rollover applies also within the tiers in the Existing Technologies Account). At the end of 2001, or perhaps before, the Committee believes that it will become apparent whether rollover funds are not needed in their own accounts and can be reallocated elsewhere. An amount equal to three percent (\$16.2 million) of the total AB 1890 funding for renewables, if available as rolled over funds at the end of 2001, will be allocated to emerging technologies. Remaining funds will be held in a surplus account and will be allocated where they are most effective at that time.

DISTRIBUTION MECHANISMS

Since the market characteristics of the renewables industry vary substantially between existing, new, and emerging technologies and between suppliers and consumers, a “one size fits all” approach for the distribution of the renewables funds will not provide the best means to develop a self-sustaining renewable industry in California. The Committee proposal contains four separate distribution mechanisms for the four accounts, but three of these are production incentives denominated in cents per kilowatt hour (kWh). These three mechanisms, for the Existing Technologies, the New Technologies, and the Customer Side Accounts, are differentiated by characteristics particular to the circumstances of those Accounts. The proposed distribution mechanisms are summarized in Table ES-2 and described in detail in Chapters 3-6.

The first goal of the Committee’s proposed distribution mechanisms is the use of market-based mechanisms as specified in AB 1890. The second goal is to keep the distribution mechanisms as simple and flexible as possible to minimize administrative overhead and ease decision-making. The mechanisms proposed include simple safeguards (caps) and built in flexibility to adjust to changes in market conditions (price and quantity generated) and technological developments, while automatically avoiding most overpayment or underpayment issues. The third goal is to respect the proposals from industry representatives and stakeholders who participated in the Energy Commission’s extensive information gathering proceedings, who can be presumed to have the best information about their industries’ standing in the restructured electricity market.

Table ES - 2: Summary of Distribution Mechanisms

DDDDistribution Mechanism	Features	Eligibility Criteria	Exclusions
1.Per kWh Production Incentive <i>(Existing Technologies Account)</i>	<ul style="list-style-type: none"> • amount determined by lesser of: <ol style="list-style-type: none"> 1) target prices minus SRAC prices; 2) available funds divided by generation; or 3) specified production incentive caps • payments made on a monthly basis • rain check provision for plant improvements • three subaccount “tiers”, with different target prices and caps 	<ul style="list-style-type: none"> • meets definition of an “existing renewable resource technology” 	<ul style="list-style-type: none"> • any facility selling power under the fixed-energy price period of a SO4 contract is excluded • utility-owned generation that has not been divested is excluded • generation owned by or sold to municipal utilities is excluded • self generation is excluded
2.Per kWh Production Incentive <i>(New Technologies Account)</i>	<ul style="list-style-type: none"> • allocation to specific suppliers determined by a simple competitive auction • funds distributed monthly over a five-year period 	<ul style="list-style-type: none"> • meets definition of a “new renewable resource technology” 	<ul style="list-style-type: none"> • any facility selling power under a Standard Offer 2 or 4 contract is excluded • self generation is excluded • generation owned by or sold to municipal utilities is excluded
3.Project-Specific Support <i>(Emerging Technologies Account)</i>	<ul style="list-style-type: none"> • distribution mechanism determined on a project-by-project basis • could include loan guarantees, interest rate buy-downs, customer purchase rebates, capital cost buy-downs, and other forms of assistance 	<ul style="list-style-type: none"> • meets definition of an “emerging renewable resource technology” 	<ul style="list-style-type: none"> • utility-owned generation is excluded • customers that receive municipal utility distribution service are excluded from receiving support for distributed generation technologies, unless their municipal utility contributes to the State renewables fund
4.Per kWh Consumer Incentives <i>(Consumer Credit SubAccount)</i>	<ul style="list-style-type: none"> • amount determined by lesser of: 1) available funds divided by generation; or 2) a 1.5 cent/kWh incentive cap 	<ul style="list-style-type: none"> • credits awarded only for electricity sold to direct access customers 	<ul style="list-style-type: none"> • credits to customers that receive municipal utility distribution service are excluded, unless the municipal utility contributes to the State renewables fund • self generation is excluded

The Existing Technologies Account distribution mechanism is a simple cents per kWh payment tied to the relationship between target prices and the market price for electricity, along with the number of kWh generated. Target prices are fixed cents per kWh levels established for the three tiers in the Existing Technologies Account, set to reflect a competitive energy price for the technologies in the tiers, accounting for their approximate average costs and other revenue streams (e.g.- tax credits and capacity payments). Payments are made only when the “market price” falls below the target price for a tier, minimizing any unneeded support from the fund. The highest target price, for Tier 1, ramps down to equal the target price for Tier 2 by 2001. Suggested target prices and production incentive caps for the Existing Technologies Account are summarized in Table ES-3.

Table ES-3: Target Prices and Payment Caps
(Cents per kWh)

		1998	1999	2000	2001
Tier 1 (Biomass, Solar Thermal)	Target Price	5.0	4.5	4.0	3.5
	Cap	1.5	1.5	1.0	1.0
Tier 2 (Wind, LFG)	Target Price	3.5	3.5	3.5	3.5
	Cap	1.0	1.0	1.0	1.0
Tier 3 (Geothermal, Small Hydro, Digester Gas and MSW)	Target Price	2.5	2.5	2.5	2.5
	Cap	1.0	1.0	1.0	1.0

Prospective new projects will bid for the amount of support they require. Bids will consist of a cents per kWh amount and an expected amount of generation. Projects that bid the lowest support request will receive support, subject to a 1.5 cents per kWh cap, with higher bids considered until funds are fully allocated. Winning projects will be paid from their on-line date (if prior to January 1, 2001) for five years.

The Committee proposes that funds from the Emerging Technologies Account be distributed to technology projects based on the outcome of a competitive Request For Proposal (RFP) process, and that the specific form of support for winning projects be determined on a project by project basis. The RFP will be administered by the Energy Commission in 1998 using criteria to be developed by the Energy Commission during the implementation period following the completion of this report and its consideration by the Legislature.

The distribution mechanism for the customer credit subaccount is a simple consumption credit paid out through providers with the value determined by dividing available funds by the total kWhs of certified renewable power consumed through qualifying direct access sales in each period, subject to a cap of 1.5 cents per kWh.

PROPOSED CERTIFICATION PROCESS

The Committee proposes to certify suppliers and providers both for eligibility for AB 1890 funds and for direct access priority. To simplify the process, the Committee proposes that suppliers and providers of electricity from renewable resources self-certify as described below. Certification as a renewable supplier or provider will be based on the definitions of renewable resource categories in AB 1890 and this report.

Renewable resource suppliers (generating facilities) wishing to be certified will file a standardized self-certification form. The Committee recommends assigning a unique supplier identification number to each certified supplier to help maintain project confidentiality. The standard self-certification form will include the following information:

- Name and location of generating facility
- Name, address, telephone and telefax numbers of contact person
- Description of renewable resource technology used for power generation
- Size of facility (nameplate) and capacity of interconnection to grid
- Operational date of generating facility (including dates of additions such as repowering)
- Type of contract with utility (if applicable) and if ISO4, whether facility is still in fixed price portion of contract and when fixed price period ends.

Renewable resource suppliers fossil fuel in their process will also declare the percentage of fossil fuel used. As required by AB 1890, the fossil portion cannot be greater than 25 percent.

Renewable resource providers (those who sell directly to end-use customers, including marketers, aggregators, or suppliers) will register (for accelerated direct access purposes) at the time they register as a retail provider with the CPUC. The Committee proposes that renewable providers also register with the Energy Commission to receive a renewables provider identification number and to be eligible for AB 1890 funding. Receiving Energy Commission certification as a renewable resource provider does not necessarily entitle the provider to receive AB 1890 funding.

Renewable resource providers interested in marketing/brokering power to customers wanting accelerated direct access will be required to submit the following information to the Energy Commission:

- Name and business address, telephone and telefax numbers of company
- Contact person responsible for retail sales
- Description of proposed supply portfolio(s)
- Estimated proportion of power to be obtained from certified renewable sources
- List of supplier identification numbers for certified renewable sources
- Estimate of amount of energy to be purchased from certified renewable sources
- Estimated amount of customer demand (in kWhs)
- CPUC provider registration number (if available)

Both suppliers and providers who wish to receive AB 1890 funding will file a monthly report with their supplier/provider identification number that shows the amount of electricity purchased or sold and the period in which the power was generated. The Energy Commission will then use this information to calculate the level of payment to be made to those suppliers and providers.

MICROCOGENERATION, COGENERATION FUELED BY POLLUTION, AND FUEL CELLS

AB 1890 directs the Energy Commission to include consideration of the need for mechanisms to ensure the competitiveness of microcogeneration and cogeneration fueled by pollution. The legislation also requires consideration of whether fuel cells should be treated as fuel switching for purposes of exemption from the competition transition charge (CTC).

An economic analysis done by Energy Commission staff provides strong evidence of the need for mechanisms to ensure that microcogeneration and cogeneration fueled by pollution remain competitive. One such mechanism that has been identified would be a CTC exemption. There may be other mechanisms that could be used; however, the Committee makes no recommendation for any particular mechanism at this time without further analysis and discussion of alternative mechanisms.

The Committee proposes that fuel cells be found to meet the definition of renewable technology when they use non-fossil fuels and that they be found to fall within the category of fuel switching for purposes of CTC exemptions, regardless of fuel.

PROPOSED DEFINITIONS

For the purposes of this report, we have used the term “renewable resource technology” to refer to the broad resource categories such as biomass, geothermal, hydro, solar, and wind, and to subcategories within each resource category, such as photovoltaics or solar thermal. These technologies are assumed to use no more than 25 percent fossil fuel in their processes.

Renewable resource technologies include (but are not limited to) facilities that use the following sources of fuel to generate electricity:

1. the conversion of solar energy
2. wind
3. liquid or gaseous geothermal energy
4. the direct combustion or gaseous conversion of biomass

5. the direct combustion or gasification and combustion of municipal solid waste, where such waste may include, but not consist primarily of, products originally manufactured from fossil fuels after the end of such products useful life
6. the anaerobic digestion of biological wastes
7. hydropower with a generating capacity of 30 megawatts or less

The legislation specifies that it is the “in-state operation and development of existing and new and emerging renewable resource technologies”⁷ that should be supported. The phrase “operation of technologies” would appear to indicate that it is the generation which is intended to be “in-state” rather than the resource. By this definition, municipal waste, biomass or used tires that originate in California, but are transported outside of California for combustion and conversion into electricity, will not be eligible for support. Neither will generating facilities located outside California with transmission lines in California. These restrictions appear consistent with how the Legislature used the term “in-state;” moreover, it is easier to certify the location of a particular power plant and that electricity was generated by that plant, than to track and account for the fuel or renewable resource that might be combined with “non-California fuels” in a power plant that might not even be located in California.

The term “existing renewable resource facility” is defined as a facility, using a renewable resource technology, that is located in California and became operational (generating electricity for sale) prior to January 1, 1998.

Substantially refurbished facilities have characteristics of both existing technologies and new technologies. For the purposes of the AB 1890 renewables program, we propose that any refurbished facility, originally in operation prior to January 1, 1998, and not selected to receive funding support from the New Technologies Account be classified as an existing facility.

The term “new renewable resource facility” is defined as a facility, using a renewable resource technology, that is located in California and became operational (generating electricity for sale) on or after January 1, 1998.

Facilities that are substantially refurbished on or after January 1, 1998, may compete for funding support from the New Technologies Account, provided that they do not operate and hold a utility contract that pays long-term fixed energy or capacity prices. A refurbished facility is considered to be a “new renewable resource facility” for the purposes of AB 1890 fund distribution if the fair market value of the non-refurbished portion of the facility does not exceed 20 percent of the refurbished facility’s total value. For the purposes of the AB 1890 renewables program, we propose that any refurbished facility, originally in operation prior to January 1, 1998, and not selected to receive funding support from the New Technologies Account be classified as an existing facility.

⁷ Article 7, 381.b.3.

The term “emerging renewable (resource) technology” is defined as a renewable resource technology located in California that uses photovoltaic technology, or is determined by the California Energy Resources Conservation and Development Commission to be emerging from research and development and to have significant commercial potential.

Chapter 1

INTRODUCTION

Assembly Bill 1890 (AB 1890), enacted on September 23, 1996, provides a legislative foundation for the development of a competitive market for electricity in California, fostering a *market-driven* electricity industry. This groundbreaking legislation includes direction to:

1. create an Independent System Operator (ISO) to manage California’s electricity transmission network and a Power Exchange (PX) to establish a spot market for electricity access
2. authorize “direct access” transactions between utilities and independent electricity suppliers and end-use customers
3. establish a nonbypassable competitive transition charge (CTC) until 2002 (with some exceptions and extensions) to recover the expected costs of moving to a competitive market
4. establish a rate freeze for investor-owned utilities (IOUs) at 1996 levels until the year 2002, with an immediate 10 percent reduction in residential and small commercial rates
5. collect funding from rates for public purpose programs from 1998 to 2002, including energy efficiency, renewable generation, public-interest research and development, and low income programs

DIRECTION FOR RENEWABLES IN AB 1890

AB 1890 directs the collection of \$540 million from IOU ratepayers from 1998 to 2002 to support existing, new, and emerging renewable electricity generation technologies. The legislation directs the California Public Utilities Commission (CPUC) to transfer these funds to the California Energy Commission pending further administrative and expenditure criteria guidelines from the Legislature. The funds are to be used to:⁸

1. support the operation of existing and the development of new and emerging in-state renewable resources;
2. support the operations of existing renewable technologies that provide fire suppression benefits, reduce landfill materials, and mitigate open-field agricultural burning; and

⁸ Article 7, 383.a.

3. support the operations of existing innovative solar thermal technologies that provide peak generation and reliability benefits.

AB 1890 directs the Energy Commission to report to the Legislature by March 31, 1997, with recommendations regarding *market-based mechanisms* to allocate the funds. The programs recommended should include options and implementation mechanisms that:⁹

1. reward the most cost-effective renewable generation, while fostering a market for renewable resources;
2. implement a process for certifying renewable resource providers, to provide them with funding support and to allow accelerated direct access privileges to customers that buy 50 percent or more of their electricity from certified providers;
3. allow customers to receive a rebate from the renewables fund;
4. allocate at least 40 percent of total funds to existing and at least 40 percent to new and emerging renewables; and
5. use financing and other mechanisms to maximize the effectiveness of the available funds.

The legislation also requires that the report include consideration of:¹⁰

1. the need for mechanisms to ensure that cogeneration using energy from environmental pollution in its process and microcogeneration with a total generating capacity of less than one megawatt (MW) remain competitive; and
2. whether fuel cells should be treated as fuel switching under the legislation, and therefore be eligible to avoid the CTC.

This report responds to these requirements of AB 1890.

Finally, AB 1890 directs three policies that are related to but not fully addressed in this report. First, the legislation directs IOUs to allow customers to make voluntary contributions to support renewables, with the CPUC specifying the fund to which the voluntary contributions are to be transferred.¹¹ Second, municipal utilities are directed to collect funds for public-purpose programs, including new investment in renewable resources, but AB 1890 does not specify how or whether these funds should be coordinated with the \$540 million collected from IOU ratepayers.¹² Third, AB 1890 requires the Secretary of the California Environmental Protection

⁹ Article 7, 383.b.

¹⁰ Article 7, 383.c.

¹¹ Article 7, 381.d.

¹² Article 8, 385.a.

Agency (CalEPA) to submit a report to the Legislature by March 31, 1997, that evaluates benefits attributable to the solid-fuel biomass industry and recommends public policy strategies for shifting the costs of biomass-fired generation from electric utility ratepayers to other classes of beneficiaries. The legislation requires coordination between the CalEPA and the Energy Commission's renewable policy efforts.¹³

COMMISSION REPORT DEVELOPMENT PROCESS

The Energy Commission began to gather input from renewables stakeholders and other interested parties with an En Banc Hearing on October 16, 1996. At this hearing, the Energy Commission established the Renewables Program Committee (Committee) and assigned it the task of preparing the Renewables Report required by AB 1890. The En Banc Hearing was followed by a series of six Committee and Staff workshops during November and December. During the workshops, Staff and stakeholders presented proposals about the allocation of funds among existing, new, and emerging technologies; mechanisms for distributing the funds; methods of certifying renewable energy providers; definition of key terms; and treatment of fuel cells, microcogeneration, and cogeneration using environmental pollution.

A Staff Draft Report was mailed to the participants on January 4, 1997.¹⁴ The Staff Draft Report was based upon participants' proposals during the workshops, input from Commission staff renewable technologies experts, and advice from consultants with expertise in relevant areas such as renewable technologies, financing mechanisms, and marketing mechanisms. The Staff Draft Report also included consideration of information contained in the *Renewables Working Group Report* to the CPUC.¹⁵

Public comment on the Staff Draft Report was received at a Committee Hearing on January 16, 1997, and in subsequent written submittals. The Committee developed this Committee Draft Report based upon the Staff Draft Report, further assistance from staff and consultants, and comments from participants in Energy Commission proceedings.

HISTORY AND HISTORY STATUS OF CALIFORNIA'S RENEWABLES INDUSTRY

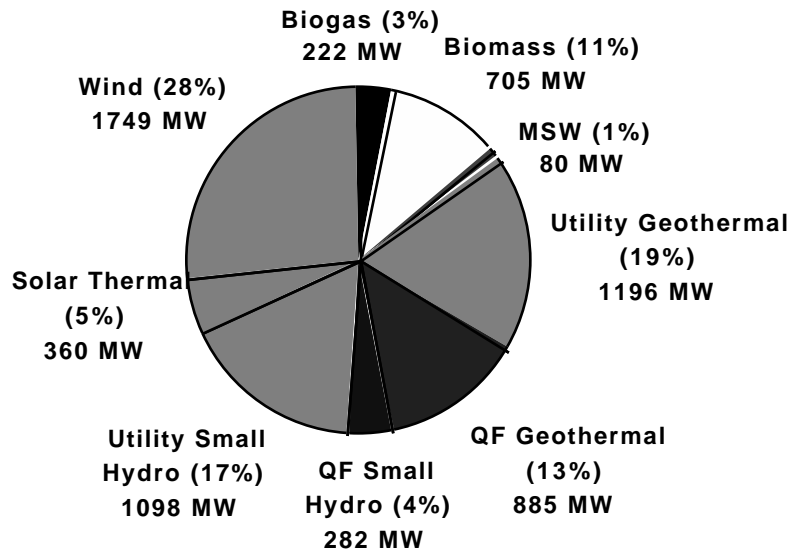
Over the past decade and a half, California has developed the largest and most diverse renewable generation industry in the world. California has nearly 6600 MW of independently-owned and utility-owned renewable power capacity, including solid-fuel biomass, geothermal, wind, small hydro (less than 30 MW), solar, landfill gas, biogas, and municipal solid waste (MSW) facilities. These facilities are estimated to have produced 26,000 Gigawatt hours (GWh) in 1994, representing approximately 12 percent of the electricity used in California. Figures 1-1 and 1-2 show the relative capacity (MW) and generation (GWh) shares, respectively, of the technologies comprising the California renewable power industry.

¹³ Article 9, 389.

¹⁴ Policy Report on AB 1890 Renewables Funding, January 3, 1997, California Energy Commission

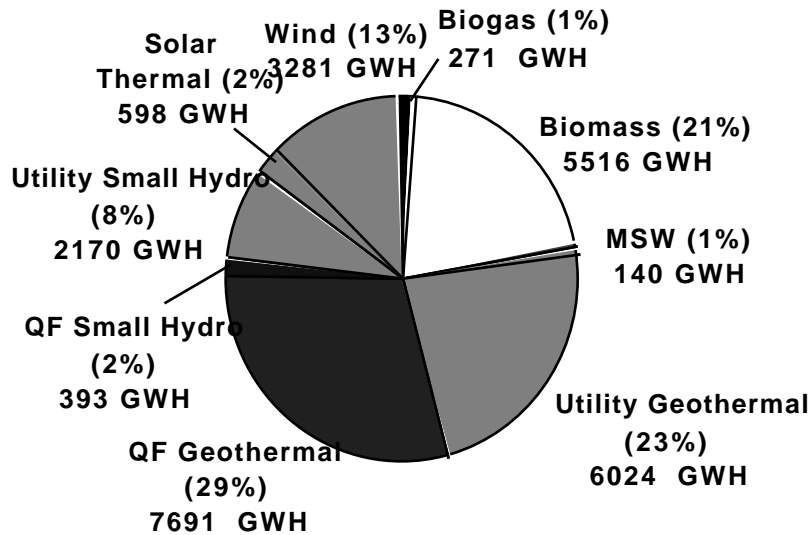
¹⁵ Renewables Working Group Report to the CPUC, August 1996, Energy Commission Publication No. 500-96-008.

Figure 1 -1 : California's In-State Renewable Capacity, 1996



This figure includes **estimates** of both utility-owned and non-utility owned capacity, but no self-generation. QF capacity is based on the Energy Commission's QF Database that includes data from the utilities' quarterly status reports on small power producers.

Figure 1 - 2: California's In-State Renewable Generation 1994 (Estimated)



This figure includes **estimates** of both utility-owned and non-utility owned renewables generation, but no self-generation. Sources for data were *Renewables Working Group Report, 1994 Electricity Report Appendices*, Energy Commission QF Database.

The development of the renewable industry was spurred by the federal Public Utility Regulatory Policies Act of 1978 (PURPA), which provided guidelines for state regulations to support growth of non-utility electricity suppliers. In California, PURPA was aggressively implemented in the early 1980s through four types of “standard offer” contracts, which required the state’s IOUs to purchase the output of independent generators, many of which were renewable. There were four types of standard offer contracts, known as SO1, SO2, SO3, and ISO4 (Interim Standard Offer Number 4) contracts, as well as proprietary negotiated contracts.¹⁶ Most non-utility renewables in California were built under ISO4 contracts, which provided fixed energy (per kWh) payments for 10 years (based upon the IOU’s forecasted avoided energy costs over that period) as well as fixed capacity payments (per kilowatt).^{17,18} Guaranteed energy and capacity payments helped to attract financing for independent energy projects.

In the 11th year of ISO4 contracts, the fixed energy prices convert to variable prices tied to the utilities’ current “short run avoided costs” (SRAC). These costs are calculated monthly by the IOUs using an agreed upon formula, currently related to the California border price of natural gas. When ISO4 contracts were signed, SRACs were expected to increase over time, but instead they decreased significantly in the late 1980s, and, except for occasional short-term increases, have remained at low levels since.

This situation has created what is known as a “price cliff” for the ISO4 contracts. SRAC prices are as much as 85 percent less than the fixed prices received at the end of the 10 year period; as facilities move into the variable energy price period of their contracts they face sharply lower payments for energy produced. Figure 1-3 shows past and present SRAC energy prices compared to fixed ISO4 energy payments (average for PG&E, SCE, and SDG&E), and illustrates two points. First, facilities with higher variable costs will have difficulty continuing to operate after they “fall off the cliff”, when they receive sharply less revenue. Already, several facilities in 1995 and 1996 have reduced their output or been taken out of service. Renewable generation in California has decreased in these years, in contrast to regular increases throughout the late 1980s and early 1990s. Second, projects that are still in the fixed energy price portion of their ISO4 contracts are receiving energy payments far in excess of current SRAC levels.

RENEWABLE MARKET PARTICIPATION

A successfully competitive renewables market will be characterized by: 1) a diverse group of consumers and suppliers, 2) an abundance of quality information, 3) a minimum of regulatory and

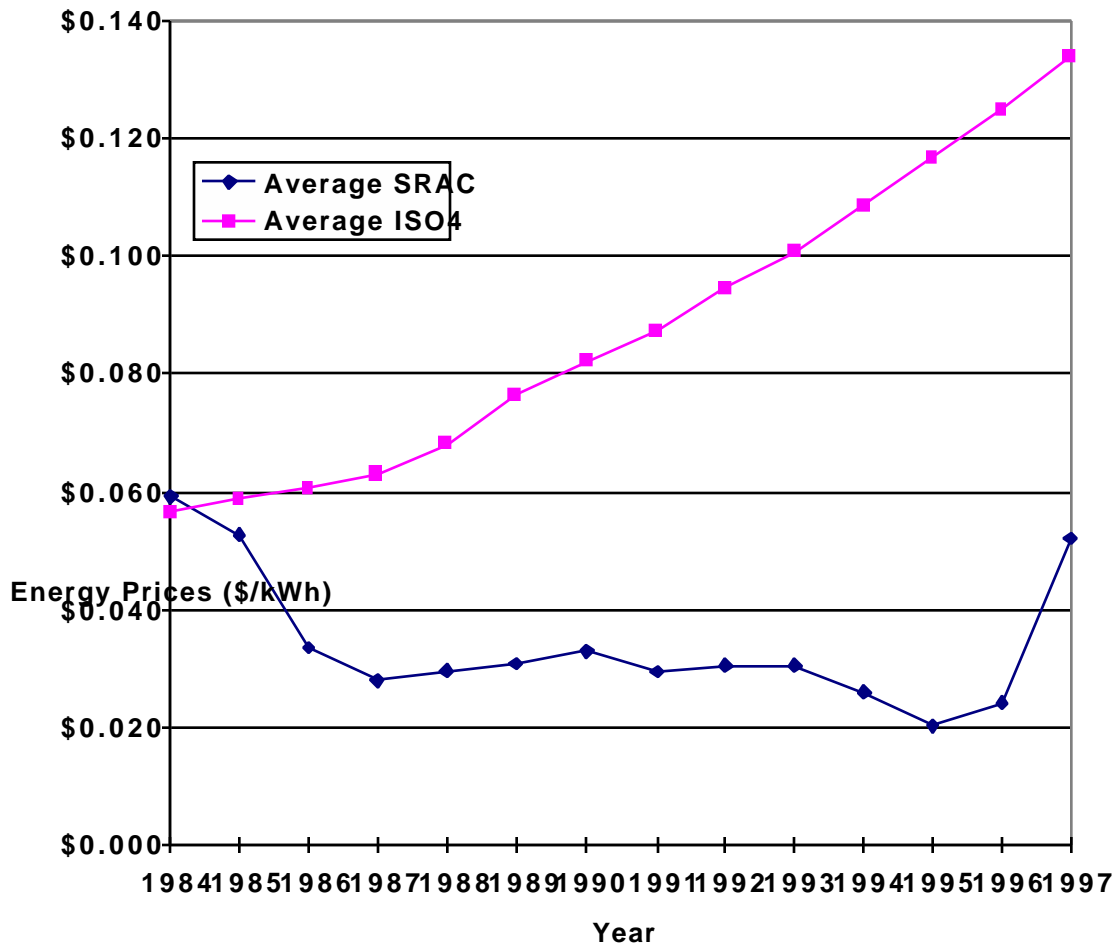
¹⁶ The standard offer 4 contracts were intended to be interim, pending final regulatory determination of standard terms. However, terms were never finalized because ISO4 offers were suspended (no longer available for new contracts) in April 1985 (SO2 offers were suspended in March 1986), after a large amount of capacity was signed.

¹⁷ Avoided energy costs are estimates of the utilities’ energy procurement costs that would have been incurred were it not for the energy provided under the contracts.

¹⁸ Fixed capacity payments are provided in SO2 and ISO4 contracts for the life of the contract, which is often as much as 30 years.

administrative intervention, and 4) prices that reflect costs without hidden subsidies or unpriced benefits.

Figure 1-3: Comparison of ISO4 and SRAC Energy Prices
(Average of PG&E, SCE, SDG&E SRAC Levels)



* 1997 SRAC price includes January only; the annual average for 1997 may be significantly different.

The Committee believes that the future of renewable energy depends heavily on the development of a strong consumer base for renewable power. Many existing suppliers may be unable to survive in a general least-cost electricity market without their existing standard offer contracts without eventual support by a steady or sizable customer-driven market. This customer-driven market for renewable power currently exists only on a small scale; time will be required to develop this market into a vibrant and reliable source of demand for renewable power.

Existing renewable industries need support to fulfill their potential to be a major part of the competitive supply in a renewables after the 1998 to 2002 transition. Mechanisms that provide consumers with the information needed to participate in the market, and provide marketers the incentives required to bring consumers and suppliers together are also needed. Moreover, all mechanisms should let the market function with minimum regulatory oversight, so that

consumers decide where to spend their money and producers decide what and how much to produce to satisfy the demands of consumers. Finally, for the market to provide true choices to consumers and maximum societal benefits, the prices of goods should reflect all costs and benefits, including external costs or benefits not normally priced (externalities).

Development of a vibrant consumer-driven market for renewable electricity implies moving away from standard-offer utility contracts to direct market transactions (although long-term contracts directly with end-use customers or their representatives may be a desirable component of the direct-access market). Customers and their representatives should be able to express their preferences for renewable power and protection against the potential risks (e.g., fuel shortages or uncertain pollution costs) of conventional power.

Renewable generators may compete in several different markets. First, projects that can bid competitively against conventionally generated electricity can and should be encouraged to participate to the fullest extent in the power exchange, taking part in the development of the competitive electricity market in California. In addition, a “green market” may provide a place where renewable electricity can sell at a premium above the conventional electricity price. Third, renewables that buy their feedstock or fuel in waste product markets must compete in that market as well as in generation markets. Finally, renewables that supply distributed power at the customer’s home or business (such as photovoltaics), operate on the customer side of the meter and compete against the fully-imbedded retail price of electricity, rather than against the wholesale market price seen by central generation facilities.

Some existing renewables generation is or may become free of standard offer contracts and available for direct access at the onset of the transition period. Table 1-1 below shows the amount of renewable capacity that is potentially available for direct access starting in 1998.

**Table 1-1: Renewable Capacity Potentially Available
for Direct Access in 1998**

	SO1 Capacity (MW)	SO3 Capacity (MW)	Surplus Capacity (MW)*	Mothballed Capacity (MW)	Total Capacity (MW)	Total Generation (GWh)
Biogas	44.5	0.5	6.7	185.0	51.7	135
Biomass	35.3	0.0	77.2		297.5	1721
Waste to Energy	0.0	0.6	0.0		0.6	1
Geothermal	0.0	0.0	0.0		0.0	0
Hydro	35.6	2.7	0.0		38.2	64
Solar	0.0	0.1	0.0		0.1	0
Wind	67.5	0.3	0.0		67.8	112
Total	182.8	4.1	83.9	185.0	455.8	2034

* Surplus is capacity available above contract capacity.

Chapter 2

ALLOCATION AND DISTRIBUTION OF AB 1890 FUNDS - PRINCIPLES AND STRATEGY

POLICY GOALS AND PRINCIPLES

The Committee's proposal is guided by an overall goal to maximize the effectiveness of the AB 1890 renewable funds toward development of a competitive renewable industry. Three broad objectives are important components of this goal:

1. to facilitate development of a self-sustaining consumer-driven renewables market in the State, allowing consumers the choice of renewable power;
2. to encourage market-based development of new and emerging renewable resources; and
3. to maintain the benefits and diversity of the renewables industry and move towards market competitiveness with the broader electricity industry.

The Committee's proposal uses market-based mechanisms, as directed by AB 1890, and maximizes competitive incentives within the constraints and guidelines of the legislation. The existing standard offer contracts limit the extent to which fully market-based mechanisms can be applied to support existing renewable industries, which are to receive a minimum of 40 percent of funds under AB 1890. AB 1890's explicit direction to support existing industries that provide fire suppression, waste reduction, agricultural waste burning, and peak reliability benefits (that is, biomass and solar thermal industries) further constrain the extent to which distribution mechanisms can be made fully competitive.

The Committee's recommendations for funding accounts and for distribution mechanisms:

1. minimize administrative requirements and maximize the influence of market incentives;
2. encourage the development of a renewables marketing infrastructure with incentives for suppliers, marketers and aggregators, and customers to participate in a renewables market;

3. encourage existing renewable suppliers to become competitive by improving operations and reducing costs and to establish competitive market relationships with providers and customers; and
4. improve the effectiveness of the funds by limiting assistance to those existing facilities that are already competitive and those that are unlikely to become competitive, given the limited available funds (i.e., using the triage principle¹⁹).

INITIAL ELIGIBILITY FOR AB 1890 SUPPORT

All participants in the Energy Commission proceedings agreed that projects with ISO4 contracts still in their fixed energy price period should receive no AB 1890 funding. Some participants suggested that even *after* the end of their fixed energy price period, these projects should be excluded from funding. The Committee agrees that those facilities still receiving high fixed energy payments (still on the cliff) *do not need and should not be eligible for* support from AB 1890 funds.

However, the Committee believes that ISO4 facilities past their cliff dates, and facilities with other utility contracts (SO1, SO2, SO3, and negotiated contracts), *may need and should be eligible for* AB 1890 funding, if they meet other eligibility criteria established by the Energy Commission. ISO4 contracts comprise about 80 percent of existing independent renewable capacity, and nearly all of these facilities will be “off the cliff” before 2002. Eliminating all facilities with standard offer contracts from consideration for AB 1890 funding could make it impossible to meet AB 1890’s mandate that a minimum of 40 percent of the renewables funds go to existing facilities. Moreover, it would be an unjustified windfall to allocate 40 percent or more of the funds among the small pool of existing facilities that never were or are no longer associated with utility standard offer contracts.

Any facilities not receiving above-market fixed energy prices may need the transitional support provided by AB 1890 to improve operations and prepare for the competitive electricity market. Excluding support to all facilities with standard offer contracts could cause a significant decrease in the economic viability of a substantial portion of the renewables market before the direct-access market is developed enough for renewables customers have the choice to purchase this power.

The Committee recommends that renewable facilities owned by existing investor-owned and other utilities be excluded from AB 1890 funding, unless they have been divested to operate in the direct-access market as private market generators. The reason for excluding IOU-owned

¹⁹ Triage is a method used in medical emergencies to allocate treatment to patients so that the number of survivors is maximized. Triage is an appropriate tool when there are insufficient resources to help all that may need support.

facilities is that: 1) IOU-owned facilities that operate will do so because they are competitive, and 2) those that do not operate because of cost-ineffectiveness will have their costs covered by the CTC. In neither case is there a need for additional support from scarce AB 1890 funds. Generation facilities owned by existing municipal and other customer-owned utilities face the same situation if they participate in the competitive market; they will either be competitive and operate or will be covered by a CTC established by the utility board.

In addition, any electricity from facilities that is used on-site, known as self-generation, should not be eligible for support from the AB 1890 funds.²⁰ Self-generation avoids the entire utility bill, including transmission, distribution, and CTC and public-goods charges. In effect, this electricity receives compensation substantially higher than wholesale market prices, and needs no further support from AB 1890. In addition, self-generated electricity may not be metered, making it difficult to determine how much support would be provided on a per kWh basis.

Finally, generation from facilities that is sold to municipal utility customers or to out-of-state customers is excluded from support from the AB 1890 funds. IOU ratepayers are providing the funds, and should not be paying for renewable generation sold to customers of other utilities.

In summary, the Committee proposes that four broad categories of renewable facilities that not be eligible for AB 1890 funding support: ISO4 facilities still in their fixed energy price period, undivested utility-owned facilities, the amount of self-generation at any facility, and generation sold to non-IOU customers. With these general exclusions, Table 1-1 shows the amount of existing renewable capacity (non-utility owned) that will be eligible for funding, by year (assuming no divestiture of utility-owned plants or restructuring of ISO4 contracts). Eligible capacity increases significantly between 1998 and 2002, as additional projects pass the end of their fixed energy price period.

**Table 2 - : Estimated Eligible Renewable Capacity
(Including ISO4 Out of Fixed Energy Price Period)**

Fuel Type	1996 Operable Capacity MW	1998 Percent of '96 Total MW	1999 Percent of '96 Total MW	2000 Percent of '96 Total MW	2001 Percent of '96 Total MW	2002 Percent of '96 Total MW
Biomass	925	470 51%	530 57%	799 86%	868 94%	870 94%
Geothermal	851	314 37%	604 71%	780 92%	814 96%	814 96%
Small Hydro	291	199 68%	203 70%	235 81%	278 96%	280 96%
Solar	386	302 78%	368 95%	368 95%	386 100%	386 100%
Wind	1459	1070 73%	1220 84%	1305 89%	1419 97%	1459 100%
Totals	3911	2356 60%	2926 75%	3487 89%	3764 96%	3809 97%

From Energy Commission QF Database. Numbers represent contracted capacity, not plants actually known to be operating. Excludes utility-owned generation capacity.

²⁰ With the exception of the Emerging category, where project proponents are allowed to propose emerging self-generation applications, such as customer-sited photovoltaic systems.

OVERVIEW OF ALLOCATION ACCOUNTS

Participants in the Energy Commission's proceedings presented proposals with widely varying implications for the renewables industry. A coalition comprised of most of the established renewable industries proposed allocating 60 percent to the existing account (with an allowance for a rollover of unused funds to other accounts each year if market prices are high (see Chapter 3). In contrast, one proposal gave a substantial portion of the funds to emerging technologies, while another used the majority of funds for the marketing of renewables directly to customers. The Committee evaluated the merits and drawbacks of these proposals in relation to the established policy objectives (in Chapter 1). Using this information, the Committee developed the allocation strategy summarized in Figure 2-1. This recommended approach to the allocation of AB 1890 funds incorporates some of the elements from stakeholder and staff proposals that are most compatible with the intent of the legislation.

The Committee believes that it is important to encourage renewable facilities to participate in any markets feasible for them, to maximize the long term viability of the renewables industry. Accordingly, the Committee proposes that funds be allocated to the development of new renewables expected to be competitive with market prices, to encourage development of a consumer-based direct access marketing infrastructure markets, and to market transformation activities designed to provide potential renewable consumers with the information and certainty about their purchases needed to elicit their trusting participation in the renewables market. The Committee's allocation proposal provides incentives and support mechanisms for both the suppliers and consumers of renewable energy to help the renewables industry become more competitive with the broader electricity market and to foster a consumer-driven market for renewables.

The Committee recommends that AB 1890 renewables funding flow through four accounts, designed to provide balanced support for the renewables industry and satisfy the objectives of AB 1890. Each technology status category (Existing, New, and Emerging) is assigned an account. A fourth account, the Consumer-Side Account, is designed to help develop a consumer-driven market for renewable generation supplied by any category. While the Committee favors a customer-driven market for renewables, the fate of the existing renewables industry should not rest wholly with the consumer market until that market has proven viable. A balance of support to existing and new suppliers is needed to ensure that suppliers will be around to provide renewable power to those consumers who desire it when the consumer market develops.

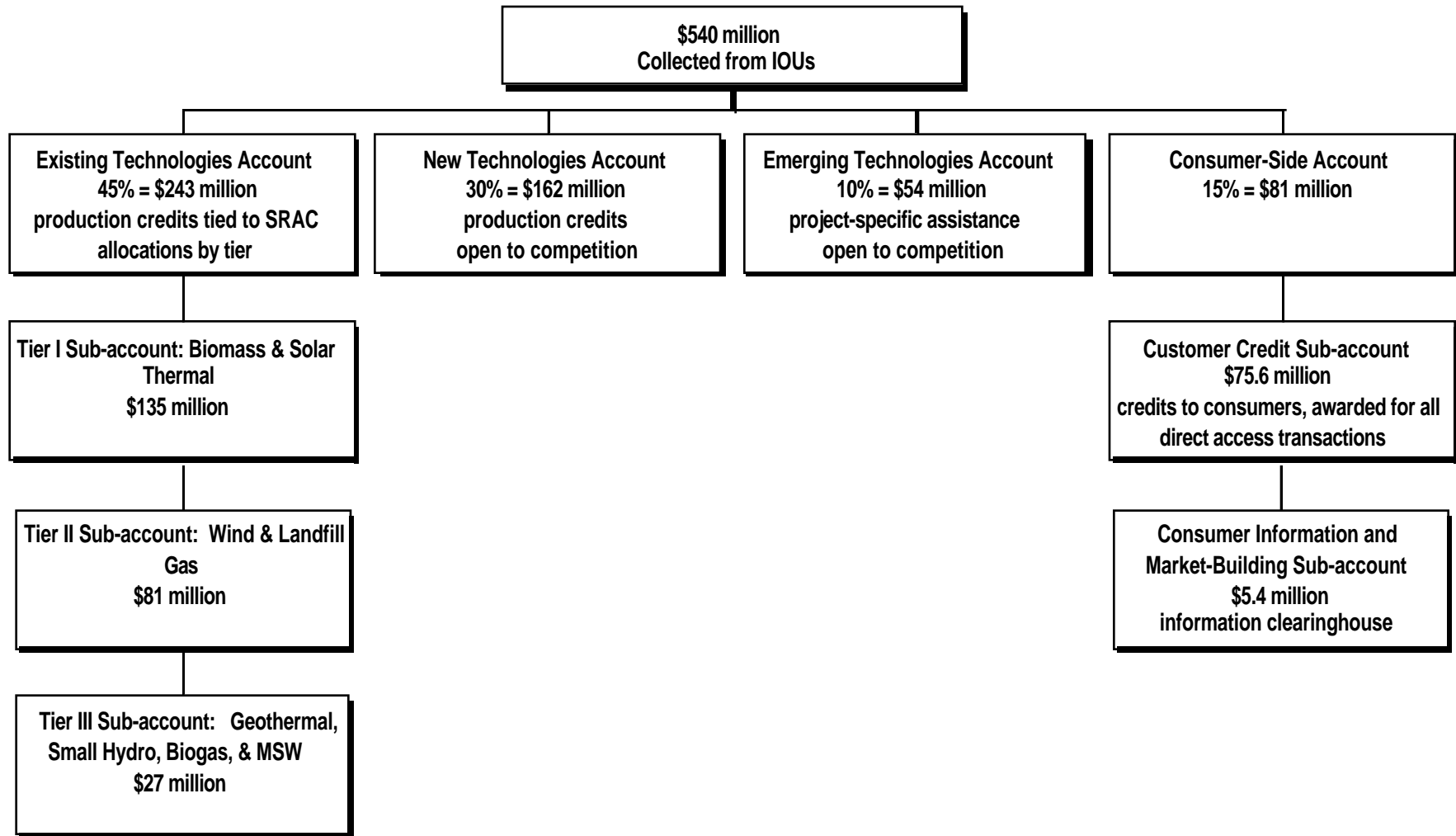
The **Existing Technologies Account** is initially allocated 45 percent of the \$540 million for the support of existing renewables (these funds may rollover to other uses if not needed). The Committee's proposal aims to maintain the benefits of the renewables industry by providing support that reflects industry needs and expected benefits, while encouraging movement towards a competitive market by the end of the AB 1890 funding period. Movement towards market-based competition is encouraged by phasing down funding over the four years and by allocating

support to three broad tiers, rather than specific technology allocations. The first tier is allocated 25 percent of the funds, the second tier is allocated 15 percent, and the third tier is allocated 5 percent (totalling 45 percent for the entire account).

Of the 40 percent minimum AB 1890 allocates to new and emerging technologies, the **New Technologies Account** is allocated 30 percent of the funds and the **Emerging Technologies Account** receives 10 percent (additional funds may become available from the Existing Account rollover). The Committee recognizes that new renewable generation developed with AB 1890 support must eventually be competitive in the general electricity market or an uncertain green market. The proposal therefore provides neither specific technology allocations nor tiers for new renewables; rather, it sets up mechanisms to reward the most competitive and cost-effective new renewable generation without (administratively) specifying technologies to be supported.

The remaining 15 percent of the funds is allocated for use in the development of a customer-driven renewables market. The Customer Ccredit Sub-account is allocated 14 percent of the consumer funds, which will be returned as a bill discount to consumers who purchase renewable energy from either existing, new, or emerging technologies. One percent of the funds is allocated to the Consumer Information and Market Building Sub-account.

Figure 2 - : Proposed Allocation of AB 1890 Renewables Funds



Timing of Funds

The Committee has developed a schedule for the allocation of funds over the four year funding period (see Table 2-2 and Figure 2-2). To direct funds to the appropriate categories when the funds will best further AB 1890 goals, we change the amounts in accounts over the four years, ramping up or down individual accounts but totalling the overall allocations given above. Funding to the existing account ramps down, while funding to the new technologies account and the customer rebate account ramp up.

The Existing Technologies Account ramps down because:

1. existing technologies must become increasingly cost-effective over the transition period if they are to compete in the market once AB 1890 funds are gone
2. the ramping of funds to the Existing Technologies Account may provide additional incentives to restructure existing utility standard offer contracts
3. the market price may increase over time, reducing the need for funding

Rollover of unspent funds (explained further below) may provide more support in later years than indicated in the initial allocation timing. The Committee understands that additional renewable facilities will be eligible for funding as they leave the fixed energy price periods of their SO contracts. These facilities are receiving high standard offer energy payments into the AB 1890 period, and must prepare to compete after 2001 with these funds, as well as the limited existing funding in later years.

We assume at this time that the AB 1890 funds will equal \$540 million collected evenly over the four-year period. We propose not to dispense funds until they are collected. We do not expect to change allocations if collection occurs in a different pattern than assumed here, but will apply the 2001 percentages shown in Table 2-2 to funds collected in 2002 if necessary.

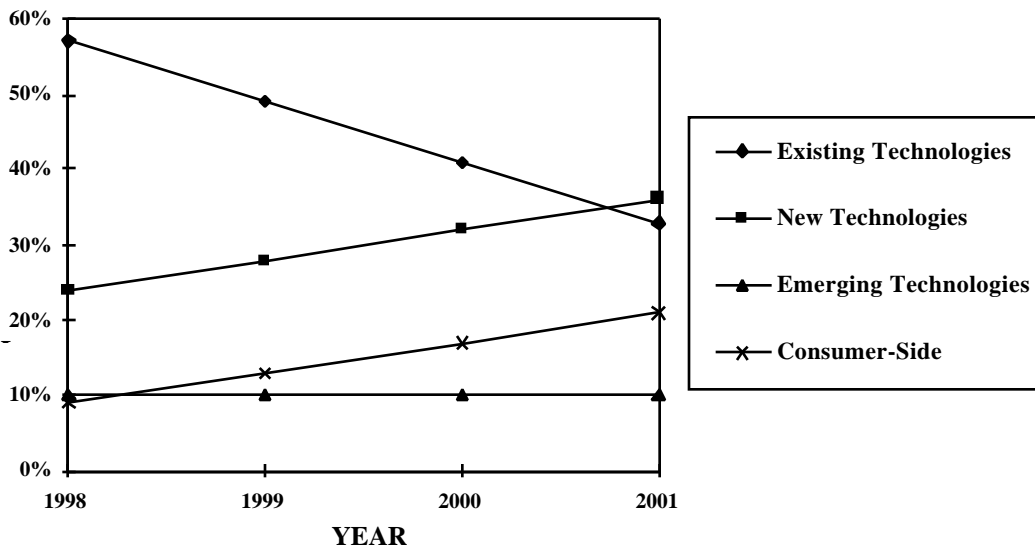
Table 2 - 2: AB 1890 Accounts - Allocations by Year

Account	1998	1999	2000	2001	overall
Existing Technologies	57%	49%	41%	33%	15%
New Technologies	24%	28%	32%	36%	
Emerging Technologies	10%	10%	10%	10%	
Customer-Side	9%	13%	17%	21%	

Funds roll over within the same Account when not needed, potentially increasing available funds in later years.

The Committee is assuming that the overall funds are collected in four equal allotments over the four year period.

Figure 2 - 2: AB 1890 Accounts - Allocations by Year



The allocation for new technologies increases over time because there are expected to be fewer new technology projects producing electricity in the early years than in the later years. This is true even though we propose to allocate the new account funds in one auction at the beginning of the period. Allocation of the funds implies commitment to winning projects, while distribution of the funds increases over time as more and more of these projects produce electricity. Similarly, the allocation to the customer-driven market account increases because few suppliers or consumers are expected to be ready to participate in a consumer-driven market by 1998, but this market is expected to grow significantly over the four years.

The eligibility criteria and distribution mechanisms for the accounts are designed to prevent oversubscription, but undersubscription is possible or even likely in any one period, as funds that are not needed are not dispensed. The Committee proposes that funds in undersubscribed accounts for any period roll over to the same account in subsequent periods (this rollover applies also within the tiers in the Existing Technologies Account). At the end of 2001, or perhaps before, the Committee believes that it will become apparent whether rollover funds are not needed in their own accounts and can be reallocated elsewhere. An amount equal to three percent (\$16.2 million) of the total AB 1890 funding for renewables, if available as rolled over funds at the end of 2001, will be allocated to emerging technologies. Remaining funds will be held in a Surplus Account and will be allocated where they are most effective at that time.

DISTRIBUTION MECHANISMS

Since the market characteristics of the renewables industry vary substantially between existing, new, and emerging technologies and between suppliers and consumers, a “one size fits all” approach for the distribution of the renewables funds will not provide the best means to develop a self-sustaining renewable industry in California. The Committee Proposal contains four separate distribution mechanisms for the four Accounts, but three of these are production incentives denominated in cents per kWh. These three mechanisms, for the Existing Technologies, the New Technologies, and the Customer Side Accounts, are differentiated by characteristics particular to the circumstances of those Accounts. The proposed distribution mechanisms are summarized in Table 2-3 and described in detail in Chapters 3 through 6.

The first goal of the Committee’s proposed distribution mechanisms is the use of market-based mechanisms as specified in AB 1890. The second goal is to keep the distribution mechanisms as simple and flexible as possible to minimize administrative overhead and ease decision-making. The mechanisms proposed include simple safeguards (caps) and built in flexibility to adjust to changes in market conditions (price and quantity generated) and technological developments, while automatically avoiding most overpayment or underpayment issues. The third goal is to respect the proposals from industry representatives and stakeholders who participated in the Energy Commission’s extensive information gathering proceedings, who can be presumed to have the best information about their industries’ standing in the restructured electricity market.

The Existing Technologies Account distribution mechanism is a simple cents per kWh payment tied to the relationship between target prices and the market price for electricity, along with the number of kWh generated. Target prices are fixed cents per kWh levels established for the three tiers in the Existing Technologies Account, set to reflect a competitive energy price for the technologies in the tiers, accounting for their approximate average costs and other revenue streams (e.g.- tax credits and capacity payments). Payments are made only when the “market price” falls below the target price for a tier, minimizing any unneeded support from the fund. The highest target price, for Tier 1, ramps down to equal the target price for Tier 2 by 2001. Funds that are not needed in any month will roll over within tiers, and will be available for assistance in later months, until the end of the funding period.

Prospective new projects will bid for the amount of support they require. Bids will consist of a cents per kWh amount and an expected amount of generation. Projects that bid the lowest support request will receive support, with higher bids considered until funds are fully allocated. Support will be capped, however, since it is not our intention to provide temporary support for new projects that are substantially above market prices and unlikely to be competitive in the long-run. Winning projects will be paid from their on-line date (if prior to January 1, 2001) for five years.

The Emerging Technologies Account must have a flexible design because the needs of emerging technologies may vary significantly from one technology project to the next. The Committee proposes that funds from this account be distributed to technology projects based on the outcome of a competitive Request For Proposal (RFP) process, and that the specific form of support for winning projects be determined on a project by project basis. The RFP will be administered by the Energy Commission in 1998. Proposals will be evaluated based on criteria to be developed by the Energy Commission during the implementation period following the completion of this report and its consideration by the Legislature.

The distribution mechanism for the customer credit subaccount is a simple consumption credit paid out to customers through providers that deliver certified power through direct access contracts with these customers. The value of the per kWh credit in each payment period will vary, and is determined by dividing available funds by the total kWhs of certified renewable power consumed through qualifying direct access sales in that period, subject to a cap of 1.5 cents per kWh.

Table 2 - 3: Summary of Distribution Mechanisms And Account Exclusions

DDDDistribution Mechanism	Features	Eligibility Criteria	Exclusions
1.Per kWh Production Incentive <i>(Existing Technologies Account)</i>	<ul style="list-style-type: none"> • amount determined by lesser of: <ol style="list-style-type: none"> 1) target prices minus SRAC prices; 2) available funds divided by generation; or 3) specified production incentive caps • payments made on a monthly basis • rain check provision for plant improvements • three subaccount “tiers”, with different target prices and caps 	<ul style="list-style-type: none"> • meets definition of an “existing renewable resource technology” 	<ul style="list-style-type: none"> • any facility selling power under the fixed-energy price period of a SO4 contract is excluded • utility-owned generation that has not been divested is excluded • generation owned by or sold to municipal utilities is excluded • self generation is excluded
2.Per kWh Production Incentive <i>(New Technologies Account)</i>	<ul style="list-style-type: none"> • allocation to specific suppliers determined by a simple competitive auction • funds distributed monthly over a five-year period 	<ul style="list-style-type: none"> • meets definition of a “new renewable resource technology” 	<ul style="list-style-type: none"> • any facility selling power under a Standard Offer 2 or 4 contract is excluded • self generation is excluded • generation owned by or sold to municipal utilities is excluded
3.Project-Specific Support <i>(Emerging Technologies Account)</i>	<ul style="list-style-type: none"> • distribution mechanism determined on a project-by-project basis • could include loan guarantees, interest rate buy-downs, customer purchase rebates, capital cost buy-downs, and other forms of assistance 	<ul style="list-style-type: none"> • meets definition of an “emerging renewable resource technology” 	<ul style="list-style-type: none"> • utility-owned generation is excluded • customers that receive municipal utility distribution service are excluded from receiving support for distributed generation technologies, unless their municipal utility contributes to the State renewables fund
4.Per kWh Consumer Incentives <i>(Consumer Credit SubAccount)</i>	<ul style="list-style-type: none"> • amount determined by lesser of: 1) available funds divided by generation; or 2) a 1.5 cent/kWh incentive cap 	<ul style="list-style-type: none"> • credits awarded only for electricity sold to direct access customers 	<ul style="list-style-type: none"> • credits to customers that receive municipal utility distribution service are excluded, unless the municipal utility contributes to the State renewables fund • self generation is excluded

IMPLEMENTATION ISSUES

Issues Requiring Legislative Guidance

Several general issues other than specific allocation, distribution mechanism, and certification protocol decisions are raised by AB 1890 and this report. Many of these issues cannot be resolved prior to receiving further legislative guidance.

Program Administration: The Legislature has selected the Energy Commission to provide this report containing recommendations concerning the allocation and administration of AB 1890 funds. The Committee recommends that the renewables funds be administered by the Energy Commission with appropriate funding approved through the Commission's regular budgetary process, allocating no funds from AB 1890 for this purpose. Additionally, the Committee recommends that an independent organization monitor progress and determine the effectiveness of the funds and mechanisms used. Authority for such activities should be made explicit.

Activities Beyond the Collection Period: AB 1890 requires funds to be collected between 1998 and early 2002, but the legislation is silent about the length of the period over which the funds may be expended. In addition, it does not indicate what should happen to funds that may not be allocated for specific expenditure by the end of the collection period. Distribution mechanisms intended to maximize fund effectiveness (e.g.- payments tied to market prices, rain check provision payments, or payments provided for five years beyond a new facilities on-line date) imply a potential need for allocation decisions and administrative activities beyond the end of the AB 1890 fund collection period. Authority for such activities should be made explicit.

In-State Expenditures of Renewable Funds: Further direction is being sought about the legal issues raised by providing support to renewables located in California, but not to those located outside the State that are engaged in electricity commerce in California .

Minimum Funding Requirements: To make the allocation better reflect market conditions and induce renewables to move towards competition, the Committee proposes to link the amount of payments to existing technologies to the posted market price. This mechanism, however, may result in less than 40 percent of the funds going to existing facilities if market prices remain high, jeopardizing compliance with the AB 1890 requirement. The Committee believes that efficiency gains from linking incentives to the market price warrant relaxation of the 40 percent minimum. Allowance for such an outcome should be made explicit.

Energy Content Labeling: To provide adequate information for consumers to make informed choices about electricity purchases, the Committee believes that California must develop or participate in a disclosure mechanism, or content label, for electricity providers. The content label, a concept generally favored by the renewables industry, will be used to provide simple and easy-to-understand information to consumers about the power content of all providers, focusing on the percentage of renewable power, and possibly on information about emissions or other

environmental factors. While efforts are underway at the federal level to develop a power content label, they are not expected to yield a plan in time for California's implementation of AB 1890. Implementation of a broad energy content label in California requires additional Legislative action, in order to ensure that consumers are provided with as much relevant information as possible for the choices they will be asked to make as the electricity market is deregulated.

Other Implementation Issues

Voluntary Contributions: The Legislation requires that utilities allow customers to make voluntary contributions through their utility bill payments and that the funds collected through these voluntary contributions be forwarded to an appropriate fund as specified by the CPUC.²¹ Based on analysis of likely outcomes of different program design (see Appendix B), the Committee recommends that funds collected through voluntary contributions be transferred to augment the \$540 million established by AB 1890 and used for support of new or emerging technologies or customer-side goals and that the ultimate allocation and distribution of these funds be decided through implementation proceedings to be held subsequent to the adoption of this report.

Exchange-Based Clearinghouse: In order to reduce transaction costs for small renewable power producers and create a market mechanism for conducting renewable energy transactions, the Committee recommends that an exchange-based clearinghouse be set up to facilitate power exchanges in the renewable energy market. For example, such a clearinghouse could be modelled after a commodity exchange, allowing bids and calls for a variety of time-denominated contracts for future renewables delivery. It would be more efficient to integrate such an exchange with a general electricity market exchange, if renewable attributes could be differentiated and made available for customer choice. Expected Power Exchange (PX) protocols and trading at this time do not seem to allow for such customer choice, nor do they appear to provide a futures market beyond the hour ahead and day ahead spot trading.

Standard Offer Contract Restructuring: A key goal of AB 1890 renewables policy is to encourage the development of a customer-driven market for renewables. This goal may be hindered by the fact that the vast majority of existing renewables are obligated to sell their output to IOUs under standard offer contracts that have terms, in most cases, extending over the next 15 to 20 years. The Committee recommends developing a process for contract restructuring that will encourage, but not compel, existing suppliers to restructure their contracts with utilities and become available for the direct access market. The Committee's current proposal for AB 1890 funding provides some encouragement for contract restructuring, but does not supersede the overall contract restructuring proceeding taking place at the CPUC. Contract restructuring and AB 1890 renewables policy plainly interrelated and should be coordinated to the extent feasible.

²¹ Article 7, 381.e.

Chapter 3

EXISTING TECHNOLOGIES

ALLOCATION TO THE EXISTING TECHNOLOGIES ACCOUNT (45% = \$243 MILLION)

Description and Rationale

The Existing Technologies Account is designed to help maintain existing renewable technologies. The Committee recommends allocating 45 percent to existing technologies (57 percent in 1998, declining to 33 percent in 2001), believing that this is the proper level of support to help the existing industry prepare for competition. To spend more on existing technologies, and correspondingly reduce the allocation to new and emerging technologies or to the customer side of the market, will not serve the policy objectives stated in AB 1890. At the same time, to allocate less than 45 percent of the funds to existing technologies might lead to a significant erosion of the existing industry, particularly if market prices fall significantly, an outcome that is also counter to the policy objectives of AB 1890.

The funds in this account will be divided into three sub-accounts called tiers. Each existing technology will be assigned to a tier appropriate for its general cost characteristics. The Committee's proposed level of funding for each tier is based on historical generation and demonstrated need. Solar thermal and biomass technologies are placed in Tier 1 and will be allocated 25 percent of the \$540 million. Wind and landfill gas (LFG) are placed in Tier 2 and will be allocated 15 percent of the funds. Geothermal, small hydro, digester gas and municipal solid waste technologies (MSW) technologies are placed in Tier 3 and allocated 5 percent of the \$540 million. Table 3-1 indicates the level of funds that will be allocated to the Existing Technologies Account and to each of the three technology tiers over time.

Table 3 - 1: Existing Technology Account - Allocations by Year

	1998	1999	2000	2001	overall
Tier 1 (Biomass, Solar Thermal)	32%	27%	23%	18%	25%
Tier 2 (Wind, LFG)	19%	16%	14%	11%	15%
Tier 3 (Geothermal, Small Hydro, Digester Gas, MSW)	6%	5%	5%	4%	5%
Existing Technologies (ALL)	57%	49%	41%	33%	45%

The creation of technology tiers is both necessary and appropriate to support the competing policy objectives outlined in AB 1890. Although the legislation directs that this report include market-based mechanisms to allocate available funds and reward the most cost effective generation, the legislation also directs that the funds be used to support existing biomass and solar thermal technologies. Furthermore, the legislation states that it is the intent of the Legislature that restructuring preserve California's commitment to developing diverse, environmentally sensitive electricity resources.²² We believe that the proposed allocation of funds into tiers provides the proper balance between supporting specific industries and encouraging all renewables to find ways to compete in the new market structure.

Eligibility and Exclusions

The existing technology funds will be available to non-utility renewable generators meeting the definition of an existing technology, including repowered facilities that elect to remain under most types of existing long-term utility contracts.²³ Projects excluded from funding will include 1) facilities selling power under the fixed energy portion of an ISO4 contract, 2) facilities under utility ownership, for which the capital cost has been previously recovered from utility ratepayers and/or is eligible to be recovered through the competitive transition charge, 3) self-generators, and 4) facilities selling electricity to municipal utilities.

Adjustments For Oversubscription or Undersubscription

The proposed distribution method described below will distribute funds through a per kWh production incentive. This method will automatically adjust for any increases or decreases in total generation, or significant increases in market prices that will otherwise provide significant windfall profits to some existing suppliers. Although the calculation method will not allow more funds to be distributed than are available in any account, there is a strong probability that some or all of the funds allocated to existing technologies will not be distributed in any particular month.

The Committee proposes that all funds allocated to Tier 1, 2 or 3 remain allocated to those tiers for the entire four years. At the end of the four year distribution period, the Committee proposes that any remaining funds (except funds reserved for a rain check provision) be reallocated as follows. The first \$16.2 million (3 percent of the \$540 million) should be reallocated to the Emerging Technologies Account. Any other rollover funds should be reallocated based on an assessment of market conditions at the end of the four year distribution period.

²² Section 1.a.

²³ Repowered facilities that operate under SO₂ or SO₄ contracts will be classified as existing, rather than new technologies for the purposes of AB 1890 funds distribution.

DISTRIBUTION MECHANISM (PER KWH PRODUCTION INCENTIVE)

Description and Rationale

The proposed distribution mechanism for existing technology funds is a per kWh production incentive based on the difference between target prices and market prices subject to a cap.²⁴ The level will be determined by taking the lowest of 1) target prices minus market prices, 2) available funds divided by kWhs of generation, and 3) a cents per kWh production incentive cap.

The suggested target prices and production incentive caps are shown in Table 3-2.²⁵ Tier 1 technologies are those that have relatively high costs and their incentive payments will be determined based on a target price of 5.0 cents per kWh in 1998, declining to 3.5 cents per kWh in 2001. The declining target price for Tier 1 is intended to encourage technologies in that category to find ways to become competitive by the end of the four year transition period. Tier 2 technologies are more cost-competitive than Tier 1 technologies, and therefore their incentive payments will be based on a 3.5 cents per kWh target price. Finally, Tier 3 technologies are those that are the most cost competitive renewables and their incentive payments will be based on a 2.5 cents per kWh target price.

Table 3-2: Target Prices and Payment Caps
(Cents per kWh)

		1998	1999	2000	2001
Tier 1 (Biomass, Solar Thermal)	Target Price	5.0	4.5	4.0	3.5
	Cap	1.5	1.5	1.0	1.0
Tier 2 (Wind, LFG)	Target Price	3.5	3.5	3.5	3.5
	Cap	1.0	1.0	1.0	1.0
Tier 3 (Geothermal, Small Hydro, Digester Gas and MSW)	Target Price	2.5	2.5	2.5	2.5
	Cap	1.0	1.0	1.0	1.0

A sample calculation illustrates how the production incentive level will be determined. Assuming that the total level of generation by certified solid-fuel biomass and solar thermal suppliers during

²⁴ We propose that market prices be estimated based on utility short run avoided cost (SRAC), as calculated in each utility service territory, until such time as the CPUC determines that the power exchange price adequately represents market prices.

²⁵ Target prices are not based purely on levelized generation costs for the different technologies. Many existing generators have other sources of funding, such as fixed capacity payments from utilities or federal tax credits. In addition, many existing facilities have paid off most, if not all, of the debt associated with initial plant construction and are therefore able to generate at lower price levels.

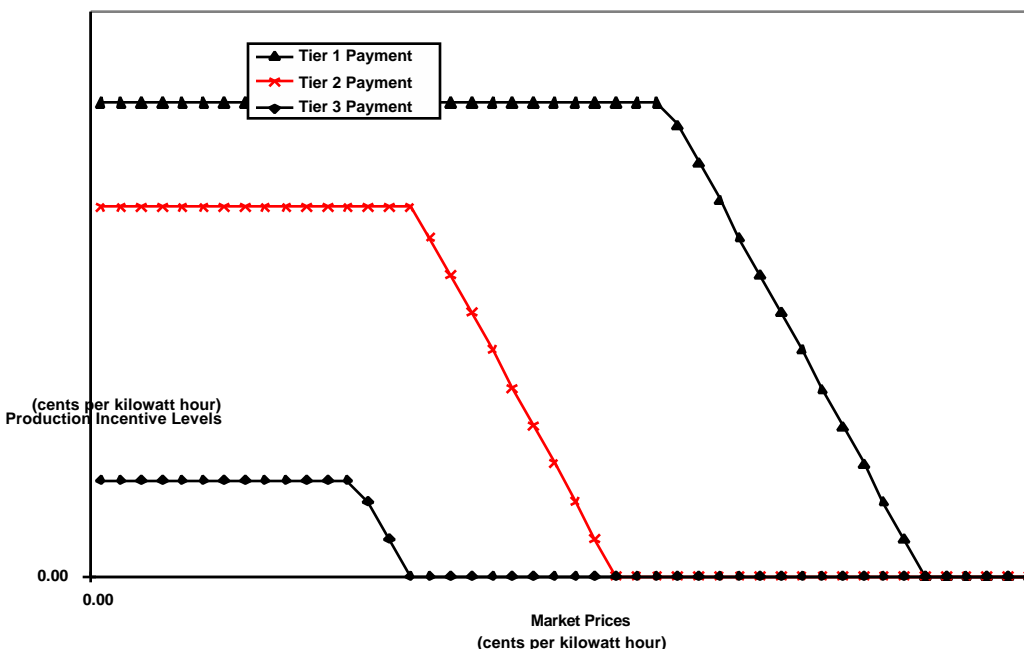
a monthly payment period is 300 gigawatt hours, the available funds during that period are \$3 million, and average market price levels are 3.2 cents per kWh, the results of the three tests described above will be as follows:

1. target price minus market price levels equals 5.0 cents per kWh - 3.2 cents per kWh = 1.8 cents per kWh
2. available funds divided by eligible generation equals \$3 million/300 million kWhs = 1.0 cent per kWh
3. the production incentive cap is 1.5 cents per kWh.

Based on the lesser of these three calculations, determined in this case by available funds divided by generation, the production incentive for technologies in Tier 1 will be set at 1.0 cents per kWh for that month. Figure 3-1 shows the relationship between market prices and the incentive payment for the proposed distribution method.

Figure 3-1: Relationship Between Market Prices and the Production Incentive

(Existing Technologies Distribution Method)



This proposed distribution mechanism represents an effective market-based system to distribute the existing technology funds to reward the most cost-effective generation. Electricity suppliers will receive payment from the fund only when they generate electricity. More cost-effective

facilities will have the incentive to generate, while less cost-effective facilities will not be supported disproportionately to their ability to generate. Those facilities that cannot compete during the transition period will lose funding as they reduce generation, and those that use natural competitive advantages, cut costs or find additional sources of customer revenues will be rewarded for their actions.

Although the proposed link to market prices and the proposed cap on production incentive payments may slightly increase the complexity of the incentive calculation, the Committee proposes these provisions because they will help to make the best use of public resources. If market prices increase significantly, as they have over the past several months, then the need of existing renewable technologies for additional revenues will decrease dramatically.²⁶ A production incentive cap, used in conjunction with a link to market prices, will prevent a situation where renewable generators receive higher support payments than needed.

Timing Of Fund Distribution

The proposed payment period for the production incentive is by month. A one month lag between generation by certified suppliers and payment of funds will allow sufficient time for collection and verification of reported generation data in order to calculate the proper payment level. This will require that payment for January 1998 be based upon generation during December 1997. Payment will be made directly to suppliers at the end of each month for four years or until the allocated funds are fully distributed.

Rain Check Provision

Certain industry representatives also expressed concern that a per kWh production incentive could become a disincentive to facilities requiring extended periods of down-time for capital improvements or repairs. Recognizing that a major objective of AB 1890 is to assist renewables in becoming cost-competitive, the Committee proposes a rain check provision that will allow suppliers the option to postpone up to six months worth of generation over the four year payment period for scheduled capital improvements or plant repairs. Plants will then qualify for the missed payments and any interest earned on them in six additional qualifying months added at the end of the payment period for a total of four and a half years of fund distribution. The level of rain-check funds held for payment will be predetermined based upon average annual generation by the particular supplier during the year prior to the scheduled maintenance outage. Suppliers will be required to announce their intention to take a rain check outage at the beginning of the month so that only planned outages, as opposed to unscheduled outages, will qualify for the rain check provision.

²⁶ Utility SRAC prices have recently reached a level of over 5.0 cents per kWh, a ten-year high. At these higher market price levels additional payments to existing technologies will not be necessary and funds will be rolled over for use in subsequent periods.

Chapter 4

NEW TECHNOLOGIES

ALLOCATION TO THE NEW TECHNOLOGIES ACCOUNT (30% = \$162 MILLION)

Description and Rationale

The New Technologies Account is designed to provide new projects with a contracted generation-based production incentive. Projects will be awarded these incentives through a competitive bid process described below. The level of funds allocated to this account will increase from 24 percent to 36 percent over the four year period (see Table 4-1) while maintaining the proposed 30 percent allocation overall. This account is sized to maximize support for new technologies without compromising other goals of AB 1890. The Committee believes that providing this type of support to new renewable technologies is the most effective way to reward the most cost-effective technologies, use market-based mechanisms, and facilitate the development of a self-sustaining market for renewable energy technologies within this limited period of time.

Table 4 - 1: New Technology Account - Allocations by Year

	1998	1999	2000	2001	overall
New Technologies (ALL)	24%	28%	32%	36%	30%

Eligibility and Exclusions

This account will be open to new or repowered technologies as defined in Chapter 9. Repowered projects with SO₂ or ISO₄ contracts, or with other utility contracts that provide long-term fixed energy and/or capacity payments, will be ineligible for funding from the new account because these facilities will have an unfair advantage over truly new projects; however, such projects will be eligible for support from the Existing Technologies Account. Project developers that have requested consideration of their technology for inclusion in the emerging technology category will be eligible to compete for the new technology funds, but specific projects cannot receive funding from both the New and the Emerging Technologies Accounts.

Adjustments For Oversubscription or Undersubscription

The Committee proposes that the new technology funds be allocated through a single competitive solicitation to be held in 1998. If the bid were under-subscribed, then any remaining funds will be allocated through a second competitive solicitation. The production incentive for new technologies will be paid over a five year period, commencing when an eligible facility comes on-line. Facilities that come on line after January 1, 2001, will not be eligible to receive funding. The Committee proposes that any funds not distributed by the end of the five-year payment period be reallocated based on an assessment of market conditions at that time.

DISTRIBUTION MECHANISM (PER KWH PRODUCTION INCENTIVE)

Description and Rationale

The proposed distribution mechanism for new renewable technologies is a simple cents per kWh production incentive awarded through a competitive bid. The results of the competitive bid will be determined based on two parameters provided in each bid: 1) the cents per kWh of incentive desired over a five-year distribution period, and 2) estimated annual generation over that same five-year period. Production incentives will be awarded to each successive low-cost bidder until the funds from the New Technologies Account are completely allocated. The Committee proposes a cap on the new technology production incentive of 1.5 cents per kWh. In addition, the Committee recommends that no single bidder be allowed to receive more than 25 percent of the New Technologies Account funds.

Any competitive bid for new technologies should be designed so that bidders have an incentive to accurately and conservatively estimate the level of generation that their proposed facility will be able to provide. If bidders were to intentionally overestimate the level of generation that they could realistically provide, then the new technology funds would not be fully distributed over the five-year period. If, on the other hand, bidders were to underestimate generation, then the New Technologies Account funds would not be sufficient to pay for every kWh generated over the five-year period. In order to encourage firms to accurately estimate the generation capability of their proposed facility, we propose that the production incentive be limited annually to the amount of generation specified in the bid and that a meaningful penalty (25 percent of the annual incentive) be subtracted from the production incentive for any facilities that fail to meet their self-determined annual generation targets.

The level of funds allocated to new renewable technologies is limited, and therefore the language in AB 1890 seems to indicate that the funds be competitively allocated. Many stakeholders endorsed the use of a competitive bid for new technologies, but warned that the bid must be kept simple to avoid potential administrative and litigation complexities that have hindered past renewables auctions. Supporters of a competitive bid generally supported an auction based purely on price and expected kilowatthours of generation.

Although the Committee carefully considered alternative project financing mechanisms for the new technology category, such as loan guarantees and interest rate buy-downs, the proposed distribution mechanism for new technologies does not currently incorporate these options because they appear to unduly complicate the proposed competitive auction. Some project developers have demonstrated an ability to find attractive project financing without additional state assistance and projects developers representing geothermal and wind technologies have indicated that project financing support could jeopardize federal production tax credits. Others have suggested that production incentives will make private market-based financing easier and thereby eliminate the need for additional financing mechanisms. The Committee believes that, unlike other types of financial assistance, a generation-based production incentive could be used by all technologies and developers and therefore provides the most equitable basis on which to conduct a competition. The Committee seeks comments regarding whether additional financing mechanisms for the New Technologies Account are needed and if so, how they might be incorporated into a competitive bidding process.

The Committee has identified several implementation issues that should be resolved before a competitive bid is held. For example, if the number of least-cost bids exceeds available funds, it may be necessary to break a tie between two or more identical bids. We propose that the Energy Commission develop a process to resolve these issues and announce rules for the competitive bid by the end of 1997 so that the bid may be held and awards made by mid-1998.

Timing of Fund Distribution

The Committee proposes that a single competitive bid be held in 1998 to award all funds to be placed in the New Technologies Account over the four year collection period. A second solicitation will only be used if the first competitive bid were undersubscribed or if one or more of the winning bidders failed to meet the terms of their bid.

The timing for distribution of the new technology production incentives will be monthly. Payments will be made for five years commencing one month after each new generation facility begins operation. Each winning bidder will be required to post a bond equal to six months worth of production incentives to reserve allocated funds. Bidders will be required to commence operation no later than January 1, 2001 to recover the performance bond. The production incentive program will sunset at the end of 2005, or five years after the last winning project begins operation.

Chapter 5

EMERGING TECHNOLOGIES

ALLOCATION TO THE EMERGING TECHNOLOGIES ACCOUNT (10 PERCENT = \$54 MILLION)

Description and Rationale

This account is designed to meet the varied needs of emerging renewable technologies. The account could be used for supplier or consumer financing or for rebates to customers for purchases of distributed generation hardware (all of which were specifically requested by some industries), or other purposes as requested and approved. The funds will be allocated to projects based on a competitive process.

Photovoltaics, which are specifically mentioned in AB 1890, are expected to be strong competitors for these funds. Staff analysis also shows there are few technologies, other than photovoltaics, that could potentially qualify as emerging technologies at the present. The Committee has therefore decided to allocate 10 percent of the \$540 million to the Emerging Technologies Account, but allows for the transfer of unused funds from other accounts to this account at the end of 2001. The first \$16.2 million (3 percent of the \$540 million) of these unused funds (which includes rollover funds from the Existing Technologies Account) will then be combined with any uncommitted funds from the Emerging Technologies Account, and will be made available for a second solicitation for emerging technology projects. The Committee believes there will be additional technologies qualifying as emerging technologies at this later date.

Eligibility and Exclusions

AB 1890 describes an emerging renewable technology as a “new renewable technology, including, but not limited to, photovoltaic technology, that is determined by the [California Energy Commission] to be emerging from research and development and that has significant commercial potential.”²⁷ To provide a common standard by which to judge any technology seeking classification as an emerging renewable technology, the Committee proposes that the following criteria be used. These criteria are intended to maximize the effectiveness of the Emerging

²⁷ Article 7, 381.h.

Technologies Account by concentrating on funding technologies and applications that are most likely to achieve significant commercial success:

1. The technology must be commercially available with at least one vendor available for the sale of the system.
2. Vendors of any generating systems employing the technology must offer at least a five year full warranty on the entire generating system.
3. The technology must show at least one year of demonstrated reliable, predictable and safe performance by a full-scale facility using this technology under field conditions.
4. Available data must show that generating systems using the technology have a useful design life of at least twenty years.
5. The technology must be designed so it can produce grid-connected electricity, because a) remote applications are generally found to be cost effective, and do not require financial assistance, and b) end-users that are not connected to the grid are not paying the CTC.²⁸
6. The technology represents a new electricity generating process not well-represented among existing grid-connected renewable generating facilities, rather than some evolutionary or incremental improvements to renewable technologies used in existing renewable resource technology generating facilities. (Examples of such evolutionary or incremental improvements will be (a) an improved blade design for wind turbines, (b) less expensive well drilling techniques for geothermal, or (c) a more efficient burner design for a biomass plant.)
7. The project must be designed exclusively for the purpose of producing electricity for sale (excluding demonstration projects that may sell to one specific customer), in contrast to a research or demonstration facility which is designed primarily for collecting additional research data.

Additional criteria will be used to determine which technology projects are the most qualified to receive funding through the Emerging Technologies Account (these will be fully worked out in the RFP process). One likely factor will be that the Energy Commission find, with reasonable probability, that the funding of such technology will produce cost reductions in the technology or sufficient California market potential such that the technology will be competitive without further financial assistance at the end of the AB 1890 support period.

²⁸ For technologies that may be grid-connected or not, the installed system that is to receive funds must be grid-connected.

DISTRIBUTION MECHANISM: PROJECT-SPECIFIC SUPPORT

Description and Rationale

The emerging account must have a flexible design because the needs of emerging technologies may vary significantly from one technology project to the next. Photovoltaics, for example, require a different form of support than that needed by central station technologies; photovoltaics requires broad industry-wide assistance as opposed to financial assistance for one particular facility.

Forms of project assistance may include consumer-side financing assistance (low-interest customer loans and/or instant rebates) to help make distributed generation technologies such as photovoltaics more affordable to consumers, loan guarantees or interest rate buy-downs for project financing assistance, per kWh production incentives similar to those provided for existing and new technologies, or capital cost buy-downs. The Committee concludes that decisions about the optimal distribution mechanisms should be postponed until the Energy Commission determines which technologies in addition to photovoltaics should be supported.

The Committee proposes that funds from this account be distributed to technology projects based on the outcome of a competitive Request For Proposal (RFP) process, and that the specific form of support for winning projects be determined on a project by project basis. The RFP will be administered by the Energy Commission in early 1998. Proposals will be evaluated based on criteria to be developed by the Energy Commission during the implementation period following the completion of this report and its consideration by the Legislature.

Timing of Fund Distribution

Business entities considering investment in emerging technologies require a level of financial certainty in order to justify investment in the manufacturing capacity necessary to bring these technologies to the market. In order to provide this greater degree of certainty, the Committee recommends that the Energy Commission hold a single solicitation for proposals in early 1998, the outcome of which will determine which technology projects should receive support. Winning projects will be assured support for the duration of the transition period, which provides a far greater level of certainty than if support were awarded on a year-by-year basis. Projects will be monitored for progress and any projects that fail to achieve specified performance milestones may lose their funding. Any undistributed funds from the first solicitation, funds that become available from projects that lose funding, and/or moneys rolled over from the Existing Technologies Account will be awarded through a second solicitation in 2002.

Chapter 6

CONSUMER-SIDE ACCOUNT

ALLOCATION TO CONSUMER-SIDE ACCOUNT (15 PERCENT = \$81 MILLION)

Description and Rationale

This consumer-side account is designed to help build a customer-driven market for renewables by: 1) encouraging customer participation in the renewables market; 2) encouraging direct access marketing by renewables; and 3) encouraging a role for aggregators and marketers of renewable power. The development of a customer-driven market is key to the creations of a self-sustaining renewables industry. The Consumer-Side Account will hold 15 percent of the \$540 million, and is divided into two sub-accounts. The first of these sub-accounts is the Customer Credit Sub-account, which will be used to provide credits to customers of renewable power; the second sub-account is the Consumer Information and Market-building Sub-account, which is designed to facilitate the market through the education of consumers.

The Customer Credit Sub-account: The Customer Credit Sub-account is designed to reduce the cost premium that customers pay for renewable energy and thus encourage customers to buy renewable power. AB 1890 requires that the Energy Commission design programs that will “[a]llow customers to receive a rebate from the fund through mechanisms such as a reduction in their electricity bill or a direct payment from the fund for the transition charges that will otherwise apply to their purchases from renewable resource providers.²⁹” The Customer Credit Sub-account is designed to respond to this portion of AB 1890.

The Customer Credit Sub-account will hold 14 percent of the \$540 million. This account is sized according to information available from direct access pilot programs and utility green marketing programs in other states, which were used to roughly project a likely level of consumer participation in the renewable power market. Using these projections, Energy Commission staff estimate that consumers renewables purchases will generate credits of 1.0-1.5 cents per kWh. If all available renewables projects (i.e. projects selling in the direct access market) were to sell power in the direct access market, the credit amount may fall to slightly less than 1.0 cents per kWh.

²⁹ Article 7, 383.b.3.

The allocation to this account ramps up over the four year period while maintaining the 14 percent allocation overall, as shown in Table 6-1. The reason for starting with a smaller allocation and increasing it over time is because the customer base will likely be smaller in the beginning than in later years.

TABLE 6-1: Allocations to the Customer Credit Account, by Year

Account	1998	1999	2000	2001	overall
Customer Credit	8%	12%	16%	20%	14%

The Committee is assuming that funds will be collected from utilities and allocated to accounts in four equal allotments over a four-year period.

The Consumer Information and Market-Building Sub-account: A hallmark of efficient markets is easy access to reliable product information so that consumers can make informed choices. While market research over the last 20 years indicates that consumers are interested in and support renewable energy, we should not assume that consumers will rush to buy renewable electricity when given the choice. Consumers are likely to be wary of the direct access market in general, because it represents a change in the status quo and because of concerns about cost and reliability when purchasing energy from less established or familiar companies. Consumers can be expected to be skeptical of marketing claims, and to feel confused about the workings of the system or the choices available to them. Renewable energy marketers are likely to face an even larger barrier, because consumers will not immediately understand the differences between energy types or the benefits of renewable energy relative to its cost. Even with information available in the marketplace, consumers may still hesitate because of confusion about competing advertising claims. For instance, they may be uncertain about which generation technologies are more environmentally beneficial or about which energy sources are actually renewable.

The burden for educating the public about renewable energy choices cannot rest solely with renewable energy marketers because these companies will not have the incentive to develop information helpful to the general market or to share proprietary marketing information. The reality of California's renewables industry is that there are numerous smaller independent generators of power. No individual firm, therefore, is likely to have the resources or incentives to collect, prepare, and disseminate consumer-oriented general information on renewable energy. There is a need for a central, unbiased, and consumer-friendly source of information about renewable energy choices.

AB 1890 calls for the establishment of mechanisms that reward the most cost-effective generation of renewables, and suggests a clearinghouse as one possibility for doing so. One definition of a clearinghouse is: a central institution where the collection, maintenance, and

distribution of materials or information takes place.³⁰ The Committee believes that an information clearinghouse is an appropriate mechanism for informing consumers on renewable power and for other market-building activities³¹. The Committee recommends allocating one percent of the \$540 million to the Consumer Information and Market-Building Sub-account for the development and functioning of an information clearinghouse. This clearinghouse is tentatively named the Renewable Energy Information Clearinghouse (REIC).

The mission of this information clearinghouse will be to promote and develop a consumer-driven market for renewables. The one percent allocation to the REIC should be sufficient to initiate the development and dissemination of packaged consumer information pieces designed to educate consumers and promote the renewables power market. In order to maximize its effectiveness, the clearinghouse will need to leverage funds and efforts with federal programs and the CPUC's Consumer Education Plan or Consumer Education Trust. In addition, the REIC should work with other organizations such as renewable power groups, environmental organizations, and research laboratories.

This approach is consistent with the Legislature's desire to reward the most cost-effective generation because it supports the development of an efficient market. By making reliable product information available to potential customers, the REIC will enable customers to make decisions that will reward the least-cost providers of the product. Further, by keeping its focus on the market as a whole, filling information gaps, and remaining inactive in the actual market, the REIC will permit the most innovative, entrepreneurial, and cost-reducing firms to reap the benefits of their success.

The one percent allocated to this account will be sufficient to establish the REIC and to initiate market-building activities. If the clearinghouse is proven effective in accomplishing its mission during the transition period, members in the renewables industry may elect to continue these activities through some sort of marketing or educational board. In addition, money may be available from the CPUC to assist in continuing this function.

Eligibility and Exclusions for the Customer Credit Sub-Account

Under the Committee proposal, customer credits will be awarded for qualifying purchases of certified renewable power from any provider, excluding power from utility-owned renewables. The source of the power can be an existing, new, or emerging technology. This maximizes consumer choice and provides wide flexibility to renewables marketers in developing renewable electricity generation portfolios. The customer credits will only be awarded for transactions that

³⁰ Another definition of a clearinghouse is discussed earlier in this report.

³¹ Market-building activities are those activities that help to build a customer-driven market for renewables. Primarily, these activities consist of making sure that consumers have trustworthy information in the market.

occur in the direct access market, and can apply to residential, small business, or agricultural customer purchases of renewable power. Customer credits are to be awarded for all qualifying power purchases regardless of whether or not the power generator is receiving AB 1890 funds.

DISTRIBUTION MECHANISM FOR THE CUSTOMER CREDIT SUB-ACCOUNT (PER KWH CUSTOMER CREDITS)

Description and Rationale

The proposed distribution mechanism for moneys from the Customer Credit Sub-account is a simple consumption credit paid out through certified providers that deliver power to customers in direct access contracts. The value of the per kWh credit in each payment period will vary, and is determined by dividing available funds by the total kWhs of certified renewable power consumed through qualifying direct access sales in that period, subject to a cap.

To meet the requirements of AB 1890, the credit must be passed on to customers. To make payments to each and every customer, however, would be extremely costly and unduly burdensome. Therefore, the Committee recommends that the credit be paid out in lump sum payments based on energy sold to certified providers that sell electricity to customers. Providers will then be required to show this credit as a line item on the customer's next electricity bill.

Although the ramping in the allocation to this subaccount allows for a smaller market initially that increases in size over time, the value of the consumer credits may be quite high in the early months. The Committee proposes an upper limit of 1.5 cents per kWh on the consumption credit to prevent overpayment of funds at the beginning of the direct access period. Any unused funds will remain in the customer credit fund for distribution in subsequent months.

Over the course of the renewables workshops and hearings, the Committee received wide ranging proposals for the support of renewables marketing. Some parties proposed the creation of a marketing co-op that would use favorable tax laws to provide generation from renewables to consumers at competitive rates. Other parties expressed support for one or more government designated marketing agents to purchase renewable power and sell it, using support from AB 1890 funds to subsidize these transactions. Some parties favored preset customer rebates, allocated to renewable providers on a first-come, first-served basis. Still other parties expressed doubt about the viability of any renewables marketing program, and instead favored reallocating customer rebate funds to suppliers for their use in developing a competitive renewables market, with or without strong consumer support for renewables.

The customer credit mechanism recommended by the Committee is not intended to favor any single marketing approach, but rather to provide renewables providers and marketers with a high level of flexibility in determining how best to develop a market for renewable power. While the

moneys are required to be passed on to customers, both suppliers and providers will also benefit because the rebate will increase their ability to attract customers. Suppliers and providers will have the freedom to use co-op structures, marketing agents, or other innovative approaches for selling renewable power.

Timing of Fund Distribution

Customer credit payments will be made to power providers on a monthly basis. A one month lag between electricity consumption and payment to consumers through intermediaries or suppliers will allow sufficient time for collection and verification of reported consumption data in order to determine the payment level. The Committee proposes that the first qualification period be June 1998 to provide a reasonable start-up period for the direct access renewables market. Providers will be paid at the end of each month for four years or until the funds allocated to this sub-account are completely distributed.

Chapter 7

CERTIFICATION OF RENEWABLE SUPPLIERS AND PROVIDERS

OVERVIEW AND RATIONALE

AB 1890 states that customers purchasing at least half their load from certified renewable resource providers shall be eligible for direct access irrespective of any phase-in (except for consumers served by municipal utilities).³² To ensure that these customers are indeed purchasing 50 percent of their energy from renewables, a mechanism is necessary to certify either the kWhs themselves or the provider of those kWhs. At the same time, AB 1890 states that the recommended market-based mechanisms to allocate funds should include options and mechanisms that implement a process for certifying eligible renewable resource providers. This language implies the need to also certify generators of renewable energy for funding eligibility.

PROPOSED CERTIFICATION PROCESS

The Committee proposes to certify suppliers and providers both for eligibility for AB 1890 funds and for direct access priority. To simplify the process, the Committee proposes that suppliers and providers of electricity from renewable resources self-certify as described below. Certification as a renewable supplier or provider will be based on the definitions of renewable resource categories in AB 1890 and this report.

Renewable resource suppliers (generating facilities) wishing to be certified will file a standardized self-certification form. The Committee recommends assigning a unique supplier identification number to each certified supplier to help maintain project confidentiality. The standard self-certification form will include the following information:

1. Name and location of generating facility
2. Name, address, telephone and telefax numbers of contact person
3. Description of renewable resource technology used for power generation
4. Size of facility (nameplate) and capacity of interconnection to grid
5. Operational date of generating facility (including dates of additions such as repowering)
6. Type of contract with utility (if applicable) and if ISO4, whether facility is still in fixed price portion of contract and when fixed price period ends.

³² Article 6, 365.b.2.

Renewable resource suppliers using 25 percent or less fossil fuel will also declare (subject to verification by the Energy Commission) the percentage of fossil fuel used in generation. As described in the definition of renewable resource technologies, any generation from a facility using less than 25 percent fossil fuel is currently, and will continue to be, considered 100 percent renewable generation.

Renewable resource providers (those who sell directly to end-use customers, including marketers, aggregators, or suppliers) will register (for accelerated direct access purposes) at the time they register as a retail provider with the CPUC. The Committee proposes that renewable providers also register with the Energy Commission to receive a renewables provider identification number and to be eligible for AB 1890 funding. Receiving Energy Commission certification as a renewable resource provider does not necessarily entitle the provider to receive AB 1890 funding.

Renewable resource providers interested in marketing/brokering power to customers wanting accelerated direct access will be required to submit the following information to the Energy Commission:

1. Name and business address, telephone and telefax numbers of company
2. Contact person responsible for retail sales
3. Description of proposed supply portfolio(s)
4. Estimated proportion of power to be obtained from certified renewable sources
5. List of supplier identification numbers for certified renewable sources
6. Estimate of amount of energy to be purchased from certified renewable sources
7. Estimated amount of customer demand (in kWhs)
8. CPUC provider registration number (if available)

Both suppliers and providers who wish to receive AB 1890 funding will file a monthly report with their supplier/provider identification number that shows the amount of electricity purchased or sold and the period in which the power was generated. The Energy Commission will then use this information to calculate the level of payment to be made to those suppliers and providers. Renewable resource providers who are marketing power to customers wanting accelerated direct access will also provide the following in their monthly report:

1. Description of actual supply portfolio(s)
2. Total amount of generation in portfolio
3. Actual proportion of power obtained from certified renewable sources
4. List of supplier identification numbers for certified renewable sources
5. Actual amount of energy purchased from certified renewable sources
6. Actual amount of customer demand (in kWhs)

The information from monthly reports will be examined to ensure that output from a particular supplier has not been claimed more than once. Verification that providers selling to customers

receiving direct access have provided 50 percent or more of the customers' load from renewable sources will be done on an annual basis. Since all transactions will go through the Independent System Operator, complete verification can be accomplished by cross-checking numbers filed by providers and suppliers with ISO transactions.

The Committee proposes that the Energy Commission, or an independent non-government entity under contract to the Energy Commission, be responsible for certifying and monitoring certified renewable resource suppliers and providers. Recertification will only be necessary if the status of a supplier has changed (for example, through a repower, change in ownership, or a previous loss of certification).

Penalties for falsely self-certifying could vary depending on the nature of the violation. Providers who fail to file the appropriate reports or fail to include the proper information will be placed on two-months probation but still be allowed to receive AB 1890 funds and sell to direct access customers. At the end of the two months, the provider will then re-file. If still deficient, the provider's registration will be canceled. Suppliers who knowingly allow their energy to be claimed by multiple providers will also face cancellation of their certification, as well as repayment of and loss of any future renewables funds.

Chapter 8

MICROCOGENERATION, COGENERATION FROM ENVIRONMENTAL POLLUTION, FUEL CELLS

OVERVIEW AND RATIONALE

AB 1890 directs the Energy Commission to include consideration of the need for mechanisms to ensure that microcogeneration and cogeneration facilities using pollution in their processes remain competitive in the electric services market. The legislation also requires consideration of whether fuel cells should be treated as fuel switching for purposes of exemption from the competitive transition charge (CTC). The Committee's recommendations on these issues are based on filings and presentations from participants in the Energy Commission's workshops and hearings.

MICROCOGENERATION

AB 1890 defines a microcogeneration facility as a facility of less than one megawatt. The microcogeneration industry contends that the implementation of AB 1890 will hinder the viability of their industry during the transition period if the CTC is imposed on the electricity load bypassed by microcogeneration facilities. The industry believes the CTC will render many potential microcogeneration projects uneconomic.

The legislation exempts certain cogeneration projects from the CTC, but does not expressly exempt microcogeneration. Instead, utilities are permitted, but not required, to apply for a CTC exemption for microcogeneration. One participant to the hearings and workshops argued that there was legislative intent to provide new microcogeneration facilities a specific exemption from the CTC.

Energy Commission staff conducted a sensitivity analysis on previous cogeneration forecasts done for the *1994 Electricity Report* to evaluate the possible impact of a CTC on microcogeneration economics in the Southern California Edison service area. The results of the analysis indicate that a CTC of 2.5 cents per kWh increases the payback period for microcogeneration projects to beyond 10 years. A higher CTC will virtually eliminate the chance of any new microcogeneration (see Appendix C for details of the analysis).

Energy Commission staff also evaluated the impact on the CTC if microcogeneration were exempted. Historically, an average of .954 MW of microcogeneration has been added to the three utility systems annually over the past five years. This growth occurred in a period of relatively stable rates and fuel costs. Assuming the same growth over the next four years, the impact on CTC revenue will be about .004 percent of total expected CTC revenues over the four-year period (see Appendix C for details).

Analysis done by Energy Commission staff shows clearly that there is a need for mechanisms to ensure microcogeneration remains competitive. One such mechanism that has been identified and evaluated is a CTC exemption. There may be other mechanisms that could be used; however, the Committee makes no recommendation for any particular mechanism at this time without further analysis and discussion of alternative mechanisms.

COGENERATION USING ENERGY FROM ENVIRONMENTAL POLLUTION

AB 1890 directs the Commission to consider “the need for mechanisms to ensure that cogeneration facilities that utilize energy from environmental pollution in its process . . . remain competitive.”³³ An example of such a facility is cogeneration that burns volatile organic compounds (VOCs) to meet air district emission regulations. This technology, termed “VOCgen”, can be used by customers such as bakeries, large laundries, and plastics processors.

During the Energy Commission’s workshops and hearings, a VOCgen manufacturer claimed that the technology will not be remain economic if potential customers considering this technology have to pay the CTC. The manufacturer also argues that the VOCgen technology should qualify as a “change in usage” which, under AB 1890, automatically qualifies for a CTC exemption.³⁴

From the Energy Commission’s analysis of microcogeneration, it is clear that the imposition of the CTC could affect its economic viability. It is logical that the VOCgen type of cogeneration installation will suffer a similar fate. Therefore, the Committee concludes that there is a need for mechanisms to ensure the competitiveness of the technology. As with microcogeneration, a CTC exemption will be one such mechanism, but by no means the only one. There may be other mechanisms that could be used; however, the Committee makes no recommendation for any particular mechanism at this time without further analysis and discussion of alternative mechanisms.

FUEL CELLS

³³ Article 7, 383.c.1.

³⁴ Article 6, 371.b.

There are two main issues from AB 1890 related specifically to fuel cells . The first issue is whether fuel cells should be treated as fuel switching for purposes of exemption from the CTC, and the second issue is whether fuel cells should be defined as an emerging renewable technology.

AB 1890 directs the Energy Commission determine whether fuel cells should be treated as fuel switching for purposes of application of the CTC. AB 1890³⁵ describes fuel switching as “including installation of fuel cells pending a contrary determination by the [Energy Commission]”. Fuel switching can be interpreted as switching between electricity and natural gas. The emergence of fuel cells for either cogeneration or power-only applications could reduce demands on a electric utility’s transmission and distribution system during peak summer periods by taking advantage of the underutilized natural gas supply network. This characteristic, also possessed by traditional self-generation, could provide greater diversity and reduce higher-cost electricity supplies during peak demand periods, benefiting other electricity customers. Based on this information, the Committee proposes to define fuel cells as a fuel switching technology for purposes of being exempted from the CTC.

The second issue arising from AB 1890 regarding fuel cells is whether they should be defined as a renewable technology. One workshop participant proposed that fuel cells using biogas or other fuels derived from renewables be classified as a renewable energy technology. There were no written or oral objections to this proposal.

A fuel cell is simply a technology which electrochemically converts hydrogen and oxygen into electricity, with heat and water as by-products. In and of itself, it is not a renewable technology; however, if it uses a fuel derived from a renewable source, it could be considered a renewable technology. Therefore, the Committee recommends that fuel cells be considered a renewable resource technology for those applications that utilize a renewable resource as the primary fuel.

³⁵ Article 6, Section 371.b.

Chapter 9

DEFINITIONS

PROPOSED DEFINITIONS

Renewable Resource Technology

AB 1890 defines “renewable resource technologies” by what they are *not* rather than what they are, as technologies using power sources other than those currently defined as “conventional power source[s]” in Section 2805 of the Public Resources Code. A conventional power source is defined in Section 2805 as power derived from nuclear energy, or the operation of a hydropower facility greater than 30 megawatts, or the combustion of fossil fuels with the exception of cogeneration. AB 1890 further excludes power sources that utilize “more than 25 percent fossil fuel.”³⁶

For the purposes of this report, we have used the term “renewable resource technology” to refer to the broad resource categories such as biomass, geothermal, hydro, solar, and wind, and to subcategories within each resource category, such as photovoltaics or solar thermal. These technologies are assumed to use no more than 25 percent fossil fuel in their processes.

Renewable resource technologies include (but are not limited to) facilities that use the following sources of fuel to generate electricity:

1. the conversion of solar energy
2. wind
3. liquid or gaseous geothermal energy
4. the direct combustion or gaseous conversion of biomass
5. the direct combustion or gasification and combustion of municipal solid waste, where such waste may include, but not consist primarily of, products originally manufactured from fossil fuels after the end of such products useful life
6. the anaerobic digestion of biological wastes
7. hydropower with a generating capacity of 30 megawatts or less

In-state

“In-state” is defined as being physically located within the State of California.

³⁶ Article 7, 381.b.3.

The legislation specifies that it is the “in-state operation and development of existing and new and emerging renewable resource technologies”³⁷ that should be supported. The phrase “operation of technologies” would appear to indicate that it is the generation which is intended to be “in-state” rather than the resource. By this definition, municipal waste, biomass or used tires that originate in California, but are transported outside of California for combustion and conversion into electricity, will not be eligible for support. Neither will generating facilities located outside California with transmission lines in California. These restrictions appear consistent with how the Legislature used the term “in-state”; moreover, it is easier to certify the location of a particular power plant and that electricity was generated by that plant, than to track and account for the fuel or renewable resource that might be combined with “non-California fuels” in a power plant that might not even be located in California.

Existing Renewable Resource Facility

The term “existing renewable resource facility” is defined as a facility, using a renewable resource technology, that is located in California and became operational (generating electricity for sale) prior to January 1, 1998.

The date of January 1, 1998, was chosen to distinguish between existing and new facilities. While several possible dates were considered, such as the date of enactment of the legislation, the first date of collection of funds seems the most appropriate. Any generating plant becoming operational before the specific details of the amounts and eligibility for financial assistance for new facilities is known is presumed to have been designed and built based on the economics prior to the passage of AB 1890. Therefore, classifying plants operational before January 1, 1998, as new rather than existing will reward such plants with funds intended to stimulate the construction of new generating facilities brought on line after January 1, 1998, that would not have been built without the assistance that the new renewables funds provided.

Substantially refurbished facilities have characteristics of both existing technologies and new technologies. For the purposes of the AB 1890 renewables program, we propose that any refurbished facility, originally in operation prior to January 1, 1998, and not selected to receive funding support from the New Technologies Account be classified as an existing facility.

³⁷ Article 7, 381.b.3.

New Renewable Resource Facility

The term “new renewable resource facility” is defined as a facility, using a renewable resource technology, that is located in California and became operational (generating electricity for sale) on or after January 1, 1998.

Facilities that are substantially refurbished on or after January 1, 1998, may compete for funding support from the New Technologies Account, provided that they do not operate and hold a utility contract that pays long-term fixed energy or capacity prices. A refurbished facility is considered to be a “new renewable resource facility” for the purposes of AB 1890 fund distribution if the fair market value of the non-refurbished portion of the facility does not exceed 20 percent of the refurbished facility’s total value. For the purposes of the AB 1890 renewables program, we propose that any refurbished facility, originally in operation prior to January 1, 1998, and not selected to receive funding support from the New Technologies Account be classified as an existing facility.

Emerging Renewable (Resource) Technology

The term “emerging renewable (resource) technology” is defined as a renewable resource technology located in California that uses photovoltaic technology, or is determined by the California Energy Resources Conservation and Development Commission to be emerging from research and development and to have significant commercial potential.

This definition is based on the language of Section 381(h) of AB 1890. The word “resource” is contained in other parts of the legislation where the term “emerging” is used, but “resource” is missing from Section 381(h) which defines the concept of “emerging”. Presumably the terms “emerging renewable resource technology” and “emerging renewable technology” are the same.

APPENDICES

Appendix A: Background on Tier Assignments for Existing Technologies

Appendix B: Voluntary Contributions

Appendix C: Microcogeneration Analysis

Appendix D: Electricity Product Labeling

Appendix E: Summary of Participant Proposals

Appendix A

BACKGROUND ON TIER ASSIGNMENTS FOR EXISTING TECHNOLOGIES

ALLOCATION OF FUNDS IN THE EXISTING TECHNOLOGIES ACCOUNT

Tier I: Biomass and Solar Thermal (25% = \$135 Million)

Biomass

The biomass industry requested 30 percent of the total funds to support all currently operating plants and to return eleven mothballed plants to operation. The industry requested no funds for new or emerging biomass and one percent for specified biomass market research. The Committee recommends allocating 25 percent of the total funds to Tier I of the Existing Account, which will be used to support both biomass and solar thermal technologies. In this tier, the price cap is 1.5 cents/kWh. The ability of current biomass plants to be cost-effective post 2002 appears to critically hinge on the ability to shift the costs of fuel collection and processing to non-electricity sectors. The outcome of cost shifting will be examined by the CalEPA in its report to the Legislature. In response to this reality, the Committee proposal would ramp down the target price for Tier I technologies. This provides an incentive for Tier I technologies to become more cost-competitive over the four year period. Without this link to progress, biomass facilities may be no closer to becoming competitive at the end of the funding period than they are now, a situation that would conflict with the policy objectives employed in the development of this proposal.

Biomass technologies meeting the definitions of new or emerging technologies would be eligible to compete for funding from the new or emerging accounts. In addition, biomass can enter the direct access market (or sell surplus energy in the direct access market if they have surplus-type contracts) and compete for customers who will in turn receive customer rebates.

Solar

Solar Thermal: Existing solar thermal technologies are represented by the nine parabolic trough solar electric generating systems (SEGS) in Southern California. These units comprise 354 MW of capacity and historically have produced approximately 900,000 MWh/yr or about 3.3 percent of renewable electricity in California. While these units are important as the main existing source of solar generated electricity in the state, they represent only one of several solar technologies of

the future. The Committee considered the SEGs operators' request for \$54 million, or 10 percent of total funds, to be too high given the relatively small energy capacity held by this industry and the belief that new parabolic trough construction in the foreseeable future is an unlikely event. Further, the Committee questions the benefit of continuing to support the early SEGS units which, even if modified and improved as proposed by the industry, would still not be a cost-effective technology.

The Committee proposal places solar thermal technologies in Tier I along with biomass, with an overall allocation to this Tier of 25 percent. The target price in this tier starts out at five cents/kWh and decreases .5 cents/kWh each year for the four year period.

SEGS representatives argued for cash grants in lieu of production credits on the basis that they must take their facilities off line for long periods of time in order to make routine modifications and repairs, and that this would force them to lose out on any production incentive during that period. The Committee proposes that SEGS receive production credits, including a rain check provision to the level of the full projected output potential. The rain check option would allow facilities to shut down for legitimate repairs and modifications and have the foregone production incentives held by the Energy Commission and awarded later for an equivalent amount of generation, immediately after the expiration of the program period in 2002. In this manner, all incentives to existing plants would be based on actual generation of electricity.

Photovoltaics: The photovoltaics industry requested \$90 million for customer "instant rebates," low-interest customer loans, a consumer quality assurance program, and green marketing. This request is in excess of the total allocation to emerging technologies of \$54 million. Like all other industries that have submitted funding proposals, the photovoltaics industry will not receive the full amount of their request under the Committee's proposal.

Dish Stirling and Solar Central Receiver: These technologies will be evaluated as possible candidates for emerging status and for funding from the emerging account.

Tier II: Wind and Landfill Gas (15% = \$81 Million)

Wind

The wind industry originally asked for a production incentive that would result in an allocation of nine percent for existing wind and 14 percent for new wind generators (later the industry proposed that they receive 14 percent for existing and nine percent for new wind projects). The industry defined "new" wind to include substantial retrofits and repowers of existing turbines, as these would qualify under IRS definitions as new generation and, therefore, receive federal production incentives to assist in their financing. Wind is unique in that, unlike large central station technologies, the best way to reduce high operation and maintenance costs on older turbines is to largely or completely replace them with new equipment via retrofitting or repowering. Consequently, such retrofits and repowers represent replacement of existing

capacity with new equipment of higher efficiency, better design, and lower future operation and maintenance costs.

It is important to encourage the maximum amount of such repowers and retrofits because this will create a more cost-competitive wind industry and because repowers are preferable to green field development from an environmental standpoint. Such an incentive for wind to repower is already available through the federal production credit. The Committee believes that this production credit, in addition to the support available through the existing account, will create an incentive for older, inefficient wind turbines to repower. In addition, wind turbines can repower and access funds from the New Technologies Account if they forfeit their SO₂ or ISO₄ contracts. The Energy Commission encourages but does not require wind projects to retrofit and repower wherever possible.

In response to the needs of the wind industry, the Committee proposes to group wind technologies in Tier II with landfill gas, biogas, and municipal solid waste technologies, with an overall allocation of 15 percent funding. In this tier, the price cap is one cent/kWh.

Wind technologies meeting the definitions of new or emerging technologies, would be eligible to compete for funding from the new or emerging accounts. In addition, wind generators can enter the direct access market (or sell surplus energy in the direct access market if they have surplus-type contracts) and compete for customers who will in turn receive customer rebates.

Landfill Gas

Landfill gas (LFG) technologies have site-specific costs that make it difficult to group the technology into a single cost category. New LFG sites, for example, tend to be much more cost effective than older units that do not produce as much gas. The Committee recommends allocating 5 percent of the total funds to Tier III of the Existing Account, which will be used to support landfill gas and wind. Staff analysis shows that the majority of LFG facilities will remain in business at the Tier II price floor. Similar to biomass, it seems that the most obvious way for LFG to survive post-2001 is by cost shifting to those who create the garbage (municipalities).

In addition, LFG may be also eligible for “emerging” funds as a fuel to fuel cells or if a new type of LFG technology were to qualify as emerging.

Tier III: Geothermal, Small Hydro, MSW, & Biogas (5% = \$27 Million)

Geothermal

Based on staff’s knowledge of and work with the geothermal industry, it is the understanding of the Committee that most of the existing facilities require little if any assistance to become competitive. Further, many of those facilities that do need support are older and small plants,

and will be unable to lower operating costs with funding through AB 1890. The Committee recommends allocating five percent of the total funds to Tier III of the Existing Account, which will be used to support geothermal, small hydroelectric, biogas, and municipal solid waste technologies. In this tier, the price cap is one cent/kWh. This level of support is expected to keep most geothermal plants in operation throughout the transition period.

For new facilities, the geothermal industry indicated a need for either long-term purchase agreements or assistance in obtaining financing and reducing the cost of such financing. While these requests are not met directly, it is expected that new geothermal facilities will be able to make effective use of both customer rebates and funds from the New Technologies Account. In the direct access market, geothermal will have an advantage over other renewable technologies because they are highly cost-effective. Customer credits will further increase geothermal's ability to market renewable energy to consumers in the direct access market.

Small Hydro

Most small-scale hydroelectric facilities (i.e. less than 30 MW) are cost competitive and have little or no need for assistance, though operating costs of existing units do vary widely. The Committee proposal would place small hydroelectric technologies in Tier III along with geothermal.

Hydro would also be able to access customer credits through the direct access market, would be eligible for production credits in the New Technologies Account, and would also be eligible to submit proposals for funding of any emerging hydro technologies.

Municipal Solid Waste and Biogas

The costs for Municipal Solid Waste (MSW) technologies tend to be quite high. The purpose of MSW technologies is not to generate electricity, but to dispose of garbage and to avoid tipping fees. Up until now, MSW technologies were a way of shifting the costs of garbage disposal to electric consumers by using the high cost of electricity under SO₄s. The production credit is unlikely to affect the overall cost-effectiveness of this technology, and support to MSW should be minimized. This technology is appropriately placed in Tier III.

The costs for biogas technology are highly site-specific. Like MSW, biogas is a technology that is built for the purposes of off-setting other costs and most are used for self-generation. The production credit is unlikely to affect the overall cost-effectiveness of this technology, and support to biogas should be minimized. Biogas technologies are appropriately placed in Tier III.

Appendix B

VOLUNTARY CONTRIBUTIONS

BACKGROUND AND INFORMATION ON VOLUNTARY CONTRIBUTIONS

Section 381 (e) of AB 1890 states that “Each electrical corporation shall allow customers to make voluntary contributions through their utility bill payments as either a fixed amount or a variable amount to support programs established pursuant to paragraph (3) of subdivision (b). Funds collected by electrical corporations for these purposes shall be forwarded in a timely manner to the appropriate fund as specified by the commission.”

The interpretation of voluntary contributions is central to any recommendation about how to implement Section 381 (e), and has implications for whether the revenue received by this mechanism shall go to the Renewable Energy Fund being allocated and administered by the Commission, or to specific new renewable projects developed for or by the utilities.

Voluntary contributions may be construed narrowly to mean that utility customers may make donations to a fund at least temporarily held by the utility. This would be like many other charitable donations that people make to medical research, environmental causes or organizations, religious organizations, or political campaigns. Several utility-sponsored green pricing programs have taken this approach.

Alternatively, voluntary contributions may be interpreted broadly, giving utilities greater flexibility in how they design these programs. Green pricing experience includes a number of different programs that offer customers opportunities to support renewable energy (or “contribute”) by purchasing a quantity of electricity or capacity, or by paying monthly lease or finance fees.

Which of these interpretations is adopted has implications for:

- the success of the programs (appeal to consumers, and utility motivation);
- who manages the revenue and determines how it will be spent;
- the extent to which voluntary contributions compete with competitive marketing of renewable energy supply.

Each of these is discussed in turn below.

IMPLICATIONS OF PROGRAM DESIGN ON CHANCES OF SUCCESS

There are 14 green pricing programs offered in the United States today. Four of these are in the category of a *donation program* (voluntary contributions defined narrowly). These programs allow customers of these utilities to determine how much they will contribute and on what schedule. Options include:

- Choosing \$1, \$2 or \$4 per month (Wisconsin Public Service's SolarWise for Schools).
- Making one-time donations or nominating any amount to be added regularly to the customer's bill (Public Service Company of Colorado, Gainesville Regional Utilities; Hawaii Electric Companies offer these options plus a regular non-monthly contribution separate from the utility bill).
- A "round-up" of the customer's bill to the next whole dollar (Public Service Company of Colorado).

The first category is regular contributions. Two programs are achieving about \$1.70 per customer per month. One program has resulted in a monthly contribution of about \$3.25 per month but with no marketing the number of participants is not growing. Participants in PSCo's round-up option contribute about \$.49 per month.

Participation level is highest for PSCo, at a little over one percent of eligible residential customers. PSCo's program has been in operation for a little over three years.

For other program types, the range of monthly payments (or contributions) is much greater. In the second category of a *fixed monthly fee*:

- Gulf Power has one Solar for Schools project which charges \$1.75 per month.
- Sacramento Municipal Utility District charges (heavily subsidized) \$4 per month for a photovoltaic system on the participant's rooftop.
- Niagara Mohawk charged \$6 per month for unspecified new renewables (the program is on hold).
- Wisconsin Public Service offers rooftop PV for an up-front \$250 fee, plus \$30 per month, but with net metering the monthly fee is about \$17; there are also purchase options.
- Northern States Power also offers rooftop PV for \$50 per month with net metering for an effective price of about \$36 per month.

Most of these programs are open to limited numbers of customers so participation levels, as a percent of eligible customers, are not meaningful. Also, with the exception of SMUD's program, these have not been around very long.

The examples of WPS and NSP show that if a renewable product adds private value to customers, in addition to the public benefits of cleaner air, for example, some customers will make substantial voluntary contributions.

The third category of voluntary green pricing programs in the United States is the *green rate or tariff*.

- Residential customers of Traverse City Light & Power are paying an average premium of \$7.58 per month, and small commercial customers an average of \$20 per month, for 100 percent wind power.
- Detroit Edison is collecting \$6.59 per month for each 100 Watts of utility-sited PV energy. Some customers buy more than one unit, so the average payment is over \$9 per month.
- Wisconsin Electric charges a 2 cent/kWh premium for biomass and hydro, and customers choose whether they want 100, 50 or 25 percent of their energy from these sources. Typical monthly added cost is \$12, \$6 and \$3 respectively.
- Fort Collins Light & Power will charge about \$10 extra per month for 100 percent wind power.
- Portland General Electric will offer its largest commercial and industrial customers a variable amount of renewable energy at a price premium of about \$.01/kWh, but the minimum charge will be about \$200 per month

For residential customers these programs add revenue of roughly \$6-10 per month, three to six times the revenue per customer of the donation programs. The green tariff and fixed fee programs do not have as much participation as the donation programs, however, even in percentage terms, because most of them are either capacity- or budget-limited.

What can be concluded is that some people will pay significantly more if the program offer is appealing enough, by offering in addition to the public environmental benefits, private benefits that only the participants share, such as price stability, net metering, or rooftop PV. Altruism only goes so far.

The implication of all this is that an interpretation of voluntary contributions that encompasses at least the variety of green pricing programs to date will likely result in higher revenues than a narrow interpretation that limits voluntary contributions to the donation approach.

FUNDS MANAGEMENT

If a narrow interpretation of voluntary contributions is taken, the utilities will be collection agencies, and will turn over the revenue to the Renewable Energy Fund or other fund designated by the Commission. The management of the designated fund will be the responsibility of the Commission or other designated agency.

The argument for forwarding the money to the statewide Renewable Energy Fund is that there is not enough money there to begin with, to meet the needs of the different renewable industries. However, estimates of voluntary customer contributions as charitable donations suggest that only one to two million dollars will be raised per year. Adding this money to the pie will not significantly ease the struggle among the various industry groups for a bigger share.

COMPETITION WITH POWER SUPPLY MARKETING

A question in the minds of some renewables supporters is whether the legislatively-mandated voluntary contributions program will undermine efforts to market renewable energy in retail access markets. Whether or not it will is speculation; there is no evidence to support conclusions.

The concern is described in two ways. Customers who make voluntary contributions may be less willing to buy renewable energy in the competitive retail access market, because they can act on their support for renewables more cheaply, and with less complicated decision-making, by voluntary contributions. People who share this concern might prefer a narrow definition of voluntary contributions, in part to minimize its appeal and reduce the chance of undercutting renewables in the retail access market.

If utilities offer renewable energy products for sale, as might be expected in a broad interpretation of voluntary contributions, they might be so successful as to attract some people who would otherwise have chosen to buy at least 50 percent renewables from the retail access market, and who instead choose to purchase the utility renewable product.

An opposing view is that it will not matter. Although voluntary contributions may not create a truly large benefit for renewables, they will enlarge, rather than undermine, the number of customers who will pay for renewables, and the amount of total revenue in support of renewables. This will occur because utility-offered attractive renewable products will appeal to different customer segments and thus broaden the ways in which customers can support renewable energy:

- Customers who support renewables but are not sufficiently committed to buy the minimum 50 percent renewable product.
- Customers who support renewables but want the security of the familiar utility or do not wish to be exposed to the uncertainty of the marketplace.

This analysis concludes that those who want to go first in the competitive market, and those who want to rely significantly on renewable energy, will likely still choose the retail access market.

Appendix C

MICROCOGENERATION ANALYSIS

AB 1890 states that: “It is the policy of the state to encourage and support the development of cogeneration as an efficient, environmentally beneficial, competitive energy source that will enhance the reliability of local generation supply, and promote local business growth.” The legislation also provides exemptions from the CTC to load served onsite or over the fence by: 1) existing facilities and existing facilities that have increased their capacity by no more than 20 percent that were operational on or before December 20, 1995; 2) cogeneration facilities committed to construction as of December 20, 1995 provided that the facility is substantially operational on or before January 1, 1998; or 3) a cogeneration facility that had executed a letter of intent to enter an agreement with the utility on or before December 20, 1995. However, the legislation does not specifically exempt microcogeneration from the CTC.

AB 1890 defines a microcogeneration facility as a facility of less than one megawatt, but the legislation does not specifically exempt microcogeneration from the CTC. One participant to the hearings and workshops argued that there was legislative intent to provide new microcogeneration facilities a specific exemption from the CTC, and that the Legislature simply erred in not exempting microcogeneration. Utilities are permitted, not required, to apply for a CTC exemption for microcogeneration. Section 372(e) states: “To facilitate the development of new microcogeneration applications, electrical corporations may apply to the commission [CPUC] for a financing order to finance the transition costs to be recovered from customers employing the applications [i.e., microcogeneration facilities].” Comments from several microcogeneration vendors, Coast Intelligen, Valley Air Conditioning and Heating, and Texas Ohio Energy, Inc., indicated concern about the economics of new cogeneration systems if the CTC is imposed on microcogeneration. Valley Air has installed at least several facilities in 1996 that would be required to pay CTC.

The historical development of smaller cogeneration in California gives some insight on the ramifications of an exemption to the CTC revenue stream. The following information is from the 1996 Quarterly Cogeneration and Small Power Reports (second quarter) to the CPUC from Southern California Edison (SCE), Pacific Gas & Electric Company (PG&E), and San Diego Gas & Electric (SDG&E).

SCE reports 143 cogeneration facilities under 1 MW, totalling 22.7 MW, with an average size of .318 MW. Most of these facilities became operational between 1984 and 1996. Since January 1992, 29 facilities with capacity totalling 4.3 MW have become operational. This development reflects an average annual growth of .860 MW over the last five years. PG&E's quarterly report indicates 28 projects under 1 MW, totaling 5.2 MW, with an average size of .178 MW. Only

three facilities have become operational since January 1992, with capacity totalling .191 MW.¹ This development reflects an average annual growth of .038 MW in the last five years. SDG&E reports 40 projects under 1 MW, totalling 7.5MW, with an average size of .188 MW. Since January 1992, 11 facilities with a total capacity of .278 MW have become operational, reflecting an average annual growth of .056 MW per year in the last five years.

On an average annual basis, .954 MW has been added to the three utility systems over the past five years, during a period of relatively stable rates and fuel costs. Using a 1 MW growth estimate into the next four years, the following impact on the CTC revenue would result:

New microcogen per year:	1 MW
Assumed Capacity factor:	88% ²
Energy Production in GWh:	7.7
Assumed CTC	4.0 cents/kWh
CTC revenue loss at 4cents/kWh	
	1998: \$0.3 million
	1999: \$0.6 million
	2000: \$0.9 million
	2001: <u>\$1.2 million</u>
Total revenue loss: 1998-2001:	\$3.0 million

Based on an average electric rates of 10 cents/kWh, and 200,000 GWh per year over the next four years, the loss represents approximately .004% of total revenues over the four year period.

If a CTC were imposed on new microcogeneration facilities, it is probable that the economics of microcogeneration would decline, reducing growth until after 2001. To test this assumption, staff evaluated the possible impact of a CTC on microcogeneration economics in the SCE area through sensitivity analysis on previous cogeneration forecasts done for the *1994 Electricity Report*. Electric tariff schedules for 1996 and the Energy Commission's 1995 Adopted Natural Gas Price Forecast were used. Using a 2.5 cents/kWh CTC on college and hospital load profiles indicates that the payback period increases beyond 10 years in most instances.³ A higher CTC (such as 4 cents/kWh) would virtually eliminate any facilities that somehow might have survived a CTC of 2.5 cents/kWh.

¹ PG&E's Cogeneration and Small Power Production Quarterly Report, Second Quarter, 1996, appears to include only cogeneration 60kw or greater (with one exception of a 25kw project). In the ER92 cycle PG&E submitted more complete information on QF facilities as small as 10kw. Then (1991) there were only seventeen projects less than 60kw size, with total capacity of under 300kw. It is not known if these projects ceased operating since then. PG&E also has previously reported separately projects with paralleling agreements. Some of these may possibly be classified as microcogeneration.

² Availability of small cogeneration used by Energy Commission staff to forecast cogeneration supplies in the *1994 Electricity Report*.

³ A small 22kw cogeneration system was estimated to be economic for the small hospital load profile but only if sized to meet off-peak thermal load. This generally small size of unit is not readily available to the market and was deemed not realistic.

Appendix D

ELECTRICITY PRODUCT LABELING

WHAT IS LABELING AND WHY IS IT IMPORTANT?

Electricity product labeling is the disclosure of standard information useful to consumers in decision-making. Labeling also serves public purposes relating to environmental policy, efficiently functioning markets, and consumer "right-to-know" as demonstrated in nutrition labeling, uniform food pricing, truth-in-lending, and other consumer protection programs.

As electricity supply markets are deregulated, consumers will be faced with making choices they have never had to make before. Informed consumer choice cannot take place in retail electricity markets without full disclosure of all relevant facts important to consumers. Pilot retail access programs have shown that customer confusion and possibly misleading claims are likely to arise from the advertising and promotion efforts of competing suppliers. As with long distance telephone advertising, consumers may have a difficult time evaluating and comparing competing claims relating to price, incentives and contract terms. In addition, electricity production and supply causes substantial resource and environmental impacts which market research consistently shows is an important consideration for consumers.

WHO IS SUPPORTING DISCLOSURE AND LABELING?

The National Association of Regulatory Utility Commissioners (NARUC), at its annual meeting last November, passed a resolution in support of uniform standards for the disclosure of price, price variability, resource mix, and environmental characteristics of electricity purchases to retail and wholesale consumers. The resolution also urges states to include standards for disclosure and labeling as part of their implementation of direct access policies.

Federal restructuring legislation being developed by the U.S. Department of Energy also includes a provision for disclosure and labeling. A draft of this legislation states that electricity suppliers or providers must provide consumers with generating source data, emissions data, the unit price, price variability, and identification of other charges or costs associated with the service.

The utility commissions of the states of Maine, Massachusetts, and Vermont, in their recently-issued restructuring plans, proposed that disclosure of the generation mix be required, and Vermont and Massachusetts went further in proposing disclosure of certain environmental impacts. The legislatures of these states must decide whether to adopt these proposals.

WHO DOES THE LABELING?

The competitive suppliers and providers would be required to provide certain minimum information as a condition for registration in California. This information would be provided with every solicitation for a sale, according to the draft federal legislation, and at other times and in other forums that rules might specify. For example, information might be required to be updated quarterly, semi-annually or at least annually, and made available to the utilities commission, periodically to purchasing customers and at consumer education websites.

WHAT SHOULD BE LABELED?

The labeling should apply to specific electricity offers or brands, not the provider company. This is not an issue for a provider that offers only one product. But many companies (whether aggregator, broker, or marketer) will provide multiple products: a price-sensitive product, an interruptible product, a high power quality/high reliability product (e.g., on-site back-up), and a green product, each aimed at a different market segment. Consumers need to be able to distinguish between these in making their choices: each product will have different characteristics to be disclosed.

WHAT INFORMATION SHOULD BE COVERED?

As stated above, average price, price variability, generating source mix, and environmental characteristics of electricity supply have all been proposed. Now consumers need to be asked what information is important to them.

Nutritional labels on food did not just happen. The Food and Drug Administration conducted market research to learn what information was desired, how much information consumers could handle, and how it should be presented. Similar research is now being undertaken with regard to electricity labeling.

The Regulatory Assistance Project, with funding from The Energy Foundation and the U.S. DOE, has organized a series of focus groups of New Hampshire and Massachusetts consumers who are participating in those states' pilot programs and thus have been exposed to the advertising claims of a chaotic retail market. This research is being done in February 1997. The objectives are to learn:

- what information consumers find most useful in making decisions about electricity providers;
- what information they find confusing or do not understand; and
- what is the best way to present the information (the label).

The work is being advised by market researchers from the Food and Drug Administration who developed the nutritional labels on food products. Results should be available by the end of March, 1997.

WHAT IS THE STATUS OF FEDERAL EFFORTS? SHOULD CALIFORNIA WAIT FOR THE FEDERAL GOVERNMENT TO ACT?

The U.S. DOE restructuring legislation has not yet been introduced, although that is expected by early spring. California should not wait for the federal government to act, for a number of reasons:

- It is uncertain when Congress will pass restructuring legislation, or even whether it will pass such legislation, as there is a debate about whether restructuring should be left to the states to decide.
- Even if Congress were to pass the anticipated DOE bill this year, the draft previously cited calls for DOE to issue rules not later than January 1, 1999, prescribing the form, content, and frequency of supplier disclosure. California will begin phasing in retail access 1/1/98, one year before the earliest possible federal rules would be in effect.
- Federal legislation, if ultimately adopted, may not include disclosure and labeling requirements.
- If California and other states go first, those states will be in a much stronger position, because of their experience, to influence the implementation of any federal requirement.
- Federal legislation may grant flexibility to states to prescribe additional disclosure requirements. (The draft DOE bill does.)
- Although states may hope to avoid revising their labels by waiting for federal rules to be in place, there is no guarantee that such labeling would remain static. The FDA nutritional labels, for example, have been revised, and states which act on their own may find it desirable to revise their labels later in response to consumer research, even without any direction from the federal level.

Appendix E

SUMMARY OF PARTICIPANT PROPOSALS

Please see matrix on following page.

AB 1890 PROPOSALS MATRIX
STAKEHOLDER GROUP ALLOCATION AND DISTRIBUTION MECHANISM PROPOSALS¹

Biomass, Geothermal, Solar Thermal and Wind Industry Group	Existing: 55% New: 36% Emerging: 8% Marketing: 1%	Biomass: 31% Geothermal: 27% Wind: 23% Solar: 18% Hydro: 0%	Landfill gas: 0% ??? Solar Thermal: 10% Tires: part of biomass MSW: part of biomass	Determined within fuel types, but primarily supplier incentives.	Biomass: Existing - kWh incentives + industry research. Wind: Existing - kWh incentives; New - kWh incentives paid to repower existing plants. Geothermal: Existing - kWh incentives; New - revolving loan fund + customer rebates. Solar Thermal: Existing - O&M investment;
Environmental Protection Group	Existing: 45% New: 29% Emerging: 13%	Existing: Biomass: 25% Geothermal: 12% Wind: 13% Solar Thermal: 8%	Tire burning and landfill gas excluded. Solar Thermal gets 8% of funds.	No less than 50% of new funds must be used as customer incentives.	Existing funds allocated by technology, for use by that industry as they see fit. New funds distributed in an open competition as kWh production credits. Emerging technology funds awarded based on competitive bid - may be used for loans or cost buy-downs. No more than 50% awarded to any one company.
City and Country Governments Group	Existing: 40% New: 48% Emerging: 10% Marketing: 2%		Include landfill, digester gas.		Programs run by California Alternative Energy Financing Authority or other experienced agency. Existing: competitive quarterly bids for a kWh production incentive. New: quarterly competitive bid for kWh incentive. Emerging: competitive bid for kWh incentive.
Photovoltaics Industry Group	Existing: 50% New: 25% Emerging: 25%		PV: 18% Dish/Stirling: 2% Solar Thermal: 5%	Of the 25% to emerging (\$96m), 69% goes to consumers and 25% to consumers through a loan financing program.	For PVs: Customer rebates to buy down PV system cost (Greenback program) + revolving low interest loan program + quality assurance & green marketing campaign. There should be different programs for small scale customer-sited (low cost loan program or hardware buy-down program) versus central station technologies (technology cost buy-down).
Renewables Marketing Group	Existing: 50% New: 40% Emerging: 10 %	TBD - e.g., could be based on generation. Defer to on the allocation.	Defer to others on the allocation.	Credits given to suppliers, but payment not made until after sale to consumers.	Residential and small business consumer credits issued to suppliers on a first come first served basis. Credits issued each quarter until funds exhausted. Plan provides CTC credit incentives to leave or modify SO4 contracts and begin seeking customers.

¹ This matrix summarizes detailed funding allocation and distribution proposals presented by stakeholder groups on or before December 3, 1996. This matrix does not include proposals dealing with narrow issues or modifications of proposals received after that date, but the Committee has carefully considered the written and oral comments of all parties in developing the recommendations made in this report.